TERMINATION

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GEORGIA INSTITUTE OF TECHNOLOGY
OFFICE OF RESEARCH ADMINISTRATION

RESEARCH PROJECT INITIATION

TERMINATION

Date: June 19, 1974

Project Title: Development of a Carpooling Program for Georgia

Project No: E-25-641

Principal Investigator: Dr. S. L. Dickerson

Sponsor: Georgia Department of Transportation, Atlanta

Agreement Period: From 4-15-74 Until 6-28-74

Type Agreement: Contract No. 5-74 (Fixed Price)

Amount: $7,482

Reports Required: Technical Memoranda (each task); Final Project Report.

Sponsor Contact Person (s):

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or
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Georgia Dept. of Transportation
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Assigned to: School of Mechanical Engineering

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Patent Coordinator	Other

RA-3 (6-71)

GEORGIA INSTITUTE OF TECHNOLOGY

OFFICE OF RESEARCH ADMINISTRATION

RESEARCH PROJECT TERMINATION

Date: October 23, 1975

Project Title: Development of a Carpooling Program for Georgia

Project No: E-25-641

Principal Investigator: Dr. S. L. Dickerson

Sponsor: Georgia Dept. of Trans.; Atlanta, GA

Effective Termination Date: 9/30/74

Clearance of Accounting Charges: all have cleared

Grant/Contract Closeout Actions Remaining: NONE

Assigned to: MECHANICAL ENGINEERING

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Rich Electronic Computer Center
Photographic Laboratory
Terminated Project File No. E-25-641
Other

RA-4 (5/70)

Comments on the

LEGAL AND INSURANCE ASPECTS OF CARPOOLING, VANPOOLING AND BUSPOOLING

prepared by

Stephen L. Dickerson
School of Mechanical Engineering
Georgia Institute of Technology

under

Contract with
DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA
in cooperation with
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

Georgia DOT Contract No. 5-74
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Table of Contents

A. Introduction

A 1. Disclaimer

The author is not a lawyer nor insurance expert. This report is an engineer's interpretation of data gathered from personal interviews and documents. The personnel spoken to and the documents referred to are listed in Appendix II. In general, information resulting from personal interviews is not attributed to any particular person in order to avoid the possibilities of missquoting, however an attempt is made to quote frequently from documents and to cite those quotations so that the reader can make his own interpretation of the legal aspects of any pooling situation.

A 2. Problem Areas

There are two major problem areas of legal consequence in pooling. These are

a. Insurance coverage for accidents, and

b. Public Service Commission (PSC) regulations

There are two minor problems of legal consequence. These are

c. Liability of persons (individual and corporate) as a consequence of pooling organizational activities, and

d. Taxes on income derived from pooling.

The significance of the problems as they affect people attempting to implement pooling projects varies greatly depending upon the type of project undertaken. In general, conventional carpools present minimum difficulty, while more elaborate - but possibly more effective - efforts present several significant difficulties. Most of these difficulties are a result of the infrequent implementation of these more elaborate pooling schemes rather than any inherent difficulties.

B. Conventional Carpools

B 1. Definition of a Conventional Carpool

For purposes of this report a conventional carpool (or carpool) is a grouping of people together with one or more vehicles where

a. Transportation costs are shared in proportion to the amount of transportation recieved,

b. Fewer than eight people ride together, and

c. The group is restrictive in its membership.

B 2. Insurance Coverage and Regulation of Conventional Carpools

Item c. above is intended to insure that the operation is not one of a common carrier. That is, the group or individuals actually driving do not hold themselves forth for anyone to ride with them, who desired a ride and was willing to pay the "fare." The Georgia Code Chapter 68-601 defines "motor common carrier" as follows.

> The term "person" shall include an individual, a firm, a partnership, corporation, company and/or association.
>
> The words "motor common carrier" mean every person owning, controlling, operating, or managing any motor-propelled vehicle (and the lessees, receivers, or trustees thereof), used in the transporting of the persons and/or property (otherwise than over permanent rail tracks) for hire on the public highways of this State as a common carrier.
>
> The words "for hire" as used in Subsection (e) above, shall include an activity wherein for compensation a motor vehicle and driver are furnished to a person by another person, acting directly, or knowingly and willfully acting with another to provide the combined service of the vehicle and driver, and shall include every person acting in concert with, under the control of or under common control with a motor common carrier, who shall offer to furnish transportation for compensation. (Acts 1931, p. 199; Acts 1962, p. 444.) [1]

Thus the ordinary carpool would seem to be a common carrier unless it was restrictive in its handling of people. Of course, the words of the law are subject to interpretation and it is, of course, the practice of the PSC to not hold the carpool as a common carrier.

---

*No. in [ ] refer to references in Appendix II.

Item b above is intended to insure that the operation is not one of a "motor contract carrier" as defined in Chapter 68-502.

> The term "person" shall include an individual, a firm, partnership, corporation, company or an association.
>
> The term "motor carrier" means every person except common carriers, owning, controlling, operating, or managing any motor-propelled vehicle (and the lessees, or trustees thereof, or receivers, appointed by any court whatsoever) used in the business of transporting persons or property for hire over any public highway in this State and not operated exclusively within the corporate limits of any city or town: Provided, that the term "motor carrier" shall not include and this Chapter shall not apply to: . . . cars . . . hauling people . . . exclusively between points not having railroad factilities, and not passing through or beyond municipalities having railroad facilities, where not more than seven passengers are transported. [1]

The PSC has consistently exempted vehicles carrying seven or fewer passengers in a contract mode from regulation. However, it might also be noted that there are other exemptions which may enter pooling operations in general. These include

> . . . buses and other motor vehicles which operate within the corporate limits of municipalities and are subject to regulation by the governing authorities of such muncipalities; and this exception shall apply to taxicabs and buses even though such vehicles may in the prosecution of their regular business occassionally go beyond the corporate limits of such municipalities, provided they do not operate to or from fixed termini outside of such limits.
>
> Motor vehicles owned and operated exclusively by the United States, this State, or any subdivision thereof. [1]

The last items open the possability of pooling operations coming under the regulation of an individual municipality.

Item a. in the definition of a carpool is intended to insure that ordinary automobile insurance will be applicable in case of accidents. A Highway Users Association report states that

> . . . The industry has taken a public position of supporting carpooling in which expenses are shared, the most common carpool situation - by indicating that such operations are covered by basic automobile policies.
>
> The industry's position was noted in a recent report from the National Association of Insurance Commissioners:
>
> ". . .the entire insurance industry has assured the NAIC that it would cover carpool operations that share expenses. Some insurors have announced that they are filing new rules which will encourage people to join in carpooling." [5]

Furthermore the courts have held on numerous occasions the "public livery conveyance" exclusion does not apply to carpool like situations. A number of such cases are cited in Appendix III.According to an article appearing in the National Underwriter magazine

> The National Assn. of Insurance Commissioners has issued a memorandum saying that it has been assured by the industry advisory committee that auto insurance companies will interpret liberally the coverage for car pool operations.
>
> However, the committee asks motorists to be aware that an individual's auto insurance coverage could be affected if it is clear that the transportation arrangement takes on the aspect of a commercially operated venture for profit.
>
> James R. Maxson Jr., Lancaster, N.Y., president of the New York State Assn. of Insurance Agents, also cautioned motorists on "pooling for profit."
>
> "Insurance on a privately owned, pool-shared auto is all right as long as the car is not operated for a profit. If everyone in the pool drives his car an equal amount of time, the principle is not violated. Problems arise when some of the pool participants do not drive, but instead pay a "fee" to those who do.
>
> Mr. Maxson points out that the fee should not be more than the fair share of the gas, oil and general depreciation on the car. [3]

However, a more cautious point of view was expressed in the same Highway Users document cited earlier.

> The liability of a person driving a carpool vehicle to occupants of the vehicle is generally known. In essence he is liable for acting unreasonably when his actions are the proximate cause of injury to persons or property. To provide against this liability, drivers contract for insurance to cover the risk involved. The potential driver should be advised that three aspects of risk coverage should be discussed with his insurance company

> before undertaking to engage in carpooling, to provide assurances: (1) that coverage will be continued; (2) that bodily injury coverage is adequate taking into accourt the number of passengers carried; and (3) that any "guest-statute" problems that may exist in the particular jurisdiction present no difficulty. In states with "no-fault" insurance plans the driver should also discuss with the insurer the impact of the carpool plan on his liability and on the protection provided his passengers.
>
> In states having such "guest-statutes," a driver is liable under a higher standard of care with respect to injuries to a "paying" passenger than to the conventional or non-paying guest. In such states, the driver should have assurances from his insurer that coverages for injuries to a paying passenger will be provided.
>
> Courts in such circumstances have little difficulty in determining that a passenger is a "paying" rider if any consideration is given for the ride. If, for example, a rider drives his car on occasion as the "carpool driver," sufficient consideration is provided although no money changes hands. [5]

Currently, Georgia is not one of the states having a "guest-statue" nor is it one having "no fault" insurance plans. The courts have generally ruled in such a way however, that Georgia has a de facto quest-statute.

In summary, the author believes that if a pooling operation satisfies the three criteria for a conventional carpool most insurance policies will remain valid and the Public Service Commission will not regulate the carpool's operation.

B 3. Suggested Modifications in Insurance Coverage

It appears that carpooling should result in two effects on insurance coverage.

a. Limits on public liability should be increased by carpool drivers, and

b. Carpool riders should be eligible for lower rates.

> . . . with more people riding in a car, the need for higher coverage limits increases. "Car pool drivers should consider bodily injury liability coverage with high limits since this protects them against claims which others, including passengers, can bring after an accident. The required coverage of $10,000/$20,000 would provide protection of only $10,000 for one injury and $20,000 for each accident. With several people riding in a car, that would not be adequate protection. Increasing this coverage to $300,000/$500,000 would give protection much more adequate for the risk involved with several people in a car pool.

> . . .if a policy is written for a $1,000 medical payment up to that amount would be paid to each person for medical expenses incurred within one year of the accident. There is no need to increase the limits in order to cover additional riders since it applies to each passenger separately.
>
> Property damage liability coverage, which protects the motorist against claims resulting from damage to other people's property, is not likely to be affected by involvement in a car pool. The number of passengers ordinarily does not contribute to the amount of property damage done by the car in an accident. . . [3]

Lower insurance rates apply to bodily injury and property damage rates for those participants in carpools who do not drive at all or drive only infrequently. Generally rate reductions are available if the person drives no more than two days out of five. Some of the quotations in this regard are

> New York, Jan. 16 - - Some seven million motorists could receive reductions of up to 18 per cent in their auto insurance premiums by participating in car pools or using mass transportation during the energy crisis under changes in classification definitions announced today by the Insurance Services Office. The dollar reduction would vary by state, but it would average $30 for eligible motorists.
>
> The changes involve two classifications of drivers who use their cars to travel to and from work or school.
>
> Cars which are driven between three and ten miles one way and are used two days or less a week, or two weeks or less in a five-week period, will now be classified as "pleasure use." Owners of these cars could receive rate reductions of 13 per cent.
>
> Cars which are driven 10 miles or more one way, but with the same limitations, will now be classified as "less than 10 miles." Owners of these cars could receive reductions of 18 per cent.
>
> ISO said the changes in classification definitions are being submitted immediately to insurance regulatory authorities in 46 states, the District of Columbia and Puerto Rico. Eligible motorists should contact their agents or insurance companies to apply for the reductions. [4]
>
> Chicago-More and more automobile insurers are jumping on the car pool bandwagon, telling their policyholders that if they join a car pool and stop driving so much, they will get rate reductions, by 13 to 18%, even 22%.
>
> Several companies which said they are reducing premiums by 13 to 18% reported that these reductions apply to policyholders who join car pools and use their own cars to drive to work no more than two days out of five. These companies include Aetna Ins. Co., the Kemper Group and Fireman's Fund American. Effective date for these car pooling reductions was Feb. 1.
>
> Allstate said it will reduce insurance premiums up to 22% for its policyholders who join car pools. On Jan. 31, Archie R. Boe, Allstate chairman said: "We are preparing to file with state insurance departments a new car

> pool rate classification plan under which adult rated motorists who use their cars to drive to and from work could reduce their present auto insurance premiums up to 22%, depending upon the coverages they have, the distance they previously drove to work before joing a car pool, and the annual mileage driven."
>
> Palmer App, Kemper vice president and Central Division manager [said that]. . . . . even higher earnings of up to 29% can be realized if a commuter forsakes his car completely for commuting purposes in favor of public or private transportation. [3]

It should be noted that the carpooler must initiate action himself to get the rate reduction.

In summary, the carpooler who drives should examine his bodily injury rates to make sure that they are sufficiently high. The same holds for medical expenses. If the carpooler drives fewer than two days in five he should consider applying for a rate reduction.

C. Unconventional Pools

C 1. Alternative Unconventional Pools

Generally speaking unconventional pools are those that use a vehicle with greater capacity than the standard automobile. These are generally called van-pools or bus-pools. Both can operate exactly as a carpool except for the larger number of people riding together. In fact, of course, a nine passenger stationwagon could exceed seven passengers and thus not fall in the carpool catagory as defined earlier.

However, it is generally not feasable in the unconventional pool to rotate vehicles and drivers as in a conventional carpool. (Although its not necessary in a carpool either.) Also, as the group becomes larger it becomes less and less feasible to expect the driver to pay his prorated share of the expenses. In fact, the author would suggest that as a practical matter in order to induce a person to drive for a van-pool (10-15 passengers) that the driver would need to be given free transportation and to drive for a bus-pool (16-45 passengers) he would need to be payed as a part-time driver. However, even in this case

it is assumed here that the driver is also going to and from work when driving. If this were not the case, that is a professional driver were used, then one is talking of a conventional or dial-a-bus operation.

C 2. Public Service Commission Regulations

For van-pools and bus-pools with eight or more people riding together it is assumed that some sort of Public Service Commission "Certificate of Public Convenience and Necessity" is required. Exceptions to this might be read into the previously quoted portions of the Georgia Code. In any case, a pooling operation would fall into one of the following class of certification.

> CLASS "A" - Common carriers of passengers and/or property operating over a fixed route or between fixed termini in intrastate, or intrastate, and interstate commerce, under Certificates of Public Convenience and Necessity.
>
> CLASS "B" - Common Carriers of passengers and/or property operating over the highways of the State of Georgia but over no fixed route, in intrastate, or intrastate and interstate commerce, under Certificates of Public Convenience and Necessity.
>
> CLASS "C" - Common carriers of passengers and/or property operating over the highways of Georgia but over no fixed route, between contiguous municipalities or between points within an area comprising a municipality and the residential, commercial and industrial areas adjacent to the city limits of a municipality or contiguous manicipalities in intrastate, or intrastate and interstate commerce, under Certificates of Public Convenience and Necessity. . .
>
> CLASS"E" - Contract carriers of passengers and/or property operating over the highways of the State of Georgia but over no fixed route, in intrastate or intrastate and interstate commerce, under Certificates of Public Convenience and Necessity. [1]

Anyone seeking to become certified should, of course, obtain a copy of Georgia Public Service Commission Laws and Rules. Some of the significant points mentioned in this report are summarized here.

Hearings on applications held on the 2nd and 4th Tuesdays of each month. The applications themselves are due fifteen days earlier. (p.29)*

---

*page no. refer to reference 1, Appendix II

Service under such a certificate may be discontinued at any time except for Class "A" by surrendering such certificate and all licenses issued thereunder. Class "A" operators may discontinue service upon 30 days published notice. (p. 93-94)

Under a Class "E" certificate at most three "shippers" can be contracted with (p. 94). This seems to preclude a contract carrier pooling operation where individuals are contracted with seperately. It would appear to be possible however to arrange such a contract situation with a non-profit "commuting club" or to use such an arrangemnt where an employer was providing rides for his employees.

The actual process of making application as well as the fees are described by Rule 16. (p.112) "Within the purview of the Act" as mentioned here is believed to apply to the definition of motor common carrier and motor contract carrier quoted earlier.

> Every corporation or person owning, controlling, operating or managing any motor propelled vehicle (and lessees, or receivers, or trustees thereof, appointed by any court whatsoever), before operating any motor vehicle upon the public highways of the State for the transportation of persons or property, for hire, within the purview of the Act, shall apply to the Commission for a Certificate of Public Convenience and Necessity so to do in the following manner:
>
> (a) Application shall be made by the Commission in writing on blank forms furnished by the Commission. The application should be typewritten. However, if this is not convenient, pen and ink may be used-applicant exercising care to write legibly.
>
> (b) All information required on said application forms (where applicable to applicant) shall be given in full and all questions theron shall be answered correctly. In the event question or questions are not applicable to the applicant, they must be answered "Not applicable."
>
> (c) All applicants for Certificate of Public Convenience and Necessity to operate over no fixed route shall state in the application the territory be served, the radius in miles within which he proposes to operate from his base point and enumerate the kind or classes of property he proposes to transport, or if passengers, state the radius and type of operation.
>
> (d) All applicants for Certificate of Public Convenience and Necessity to operate over a"fixed route" shall state in the application a full description of the route over which applicant desires to operate, naming the termini and all intermediate points which the applicant proposes to serve.

(e) Application must be accompanied by cashier's check, certified check, U. S. Post Office money order or express money order, payable to "GEORGIA PUBLIC SERVICE COMMISSION" in the sum of $35.00, the fee for the issuance of a certificate; or $7.50, the fee for the transfer of a certificate. An additional fee of $5.00 for advertising must accompany the application for a certificate. . .

Total fees appear to $47.50 and no lawyer is required. It is the authors impression that the Georgia Public Service Commission is cooperative and responsive to requests for certificates which can be documented to provide a needed and unfilled service.

If an application is approved the applicant must "register his equipment and pay fees for the issuance of licenses, file evidence of insurance, file tariffs of rates and charges on property, or time schedules and fares on passengers, to be transported" within 90 days of reciept of notice of approval. Failure to do so results in automatic withdrawal of approval and forfeiture of fees.

A license fee of $25.00 is required annually for each vehicle (p. 116).

Minimum public liability and property damage insurance requirements are set by the PSC as follows (p. 126)

	Bodily Injury		
Seating capacity	1 person	all persons	property damage
0-7	$25,000	100,000	10,000
8-12	25,000	150,000	10,000
13-20	25,000	200,000	10,000
21-30	25,000	250,000	10,000
31 or more	25,000	300,000	10,000

Furthermore, the insurer must file a "Uniform Motor Carrier Bodily Injury and Property Damage Liability Certificate of Insurance" attesting to the fact that such insurance is in force before a Certificate will be issued. (p. 132). It is actually possible to self-insure if one can show sufficient assets to qualify.

Although Georgia does not have a "guest statute" once operating as a contact or common carrier the Georgia Code does seem to imply that the operator of the carrier does assume liabilities over and above that of the ordinary automobile operator.

> 68-710: PROOF OF INJURY PRIMA FACIE EVIDENCE OF WANT OF REASONABLE CARE AND SKILL: In all actions against persons, firms or corporations operating busses for hire, for damages done to persons or property, proof of such injury inflicted by the running of busses of such persons, firms or corporation, shall be prima facie evidence of want of reasonable skill and care on the part of the servants of the said person, firm or corporation in reference to such injury. (Acts 1929, pp. 315, 316). [1]

In conclusion, there seems to be no real impediment to non-conventional pooling arrangements as far as certification by the Public Service Commission is concerned. Those rules of the PSC which might pose hardships not in the public interest can always be resolved by Rule 3.

> The Commission may suspend or modify at its discretion, the enforcement of any of its rules, rates, orders or other regulations where, in its opinion, the conditions are such, in any particular instance, that a strict enforcement of such rules or other regulations would not be in the public interest. [1]

This does not of course apply to statutory requirements of common or contract carriers but only to rules of the PSC.

It must be remembered that an operator of a common carrier must serve all people who come forth who are willing to pay the fare. In general, no fare reductions can be made which is not applied uniformly to everyone. This does not prevent an operator from setting certain uniform rules of conduct for passengers which are designed to promote the safety and comfort of the passengers (for instance, no smoking), nor does it prevent tariff structures which provide for blocks of rides. For instance, one could require that a person pay a minimum fee per month regardless of the number of trips actually made. Much more complicated tariffs could be devised to encourage high occupancy with the attendant low average cost.

C 3. Insurance for Unconventional Pools

In general, insurance agents when contacted concerning van-pools and bus-pools respond with the only rate they know- the conventional bus rate. Apparently van-pool and bus-pool rates are not well established. However, the author surveyed the presidents of the 10 largest automobile insurers in Georgia with the results shown in Appendix I. It is clear that considerably more research into this problem is necessary.

The classical van-pool operation is that of the 3M corporation in Minneapolis, Minn. Their operation is very similiar to the van-pool as hypothesized in Appendix I. Their insurance costs in September of 1973 are given as $460.00/year.[6] Bus-pool operations that do not, in effect, charter regular buses from bus companies are rare. If the buses are chartered then insurance problems are generally resolved. However, it is probable, in the authors opinion, that as bus-pools become more popular chartering of buses during peak hours will become prohibitively expensive and that to control costs a true pool type of operation (see Appendix I, item 3) will become necessary.

Obtaining insurance at rates commensurate with the risks involved is likely to require considerable negotiation with insurance companies.

As a point of reference, school-bus operators, a very similiar operation in principle, are able to get liability coverage at a cost of roughly $111/vehicle/year.* Such operators have an advantage of unusual protection under the law and are carrying a rather hardy group of passengers who are likely to recover less in a lawsuit than a breadwinner in the prime of life.

*Fulton Co. Georgia rate for a fleet of 117 buses (mostly 66 passenger) for $1,000,000/accident, $100,000/person public liability; $50,000 property damage and bodily injury/accident; and $1,000/person medical payment. They have an excellent safety record and safety training program.

D. Liability of Pooling Organizers

The organizers of pooling programs should be cognizant of their possible liability for negligently caused damages. This is the same type of liability that accompanies every action by every individual. That individual may be sued by any person for any action which allegedly contributes to damage to another person. In those circumstances where an employer is undertaking to assist the formation of pools among employees it is probable that "workman's compensation laws would govern during the trips even though they take place before and after working hours."[7]

In general, the organizer should indicate to potential participants what activities and safeguards he will undertake and those he will not undertake.

In many cases, although probably not in the most effective cases, the organizer undertakes only to match up volunteers and nothing else. In such cases some type of disclaimer is printed on enrollment forms or displayed on match boards. Two example disclaimers follow. The first is used as an enrollment form. The second is an adaptation for a match board.

> Important - It should be understood by all persons using the "Commuter Club" service that its sole function is to match, on the basis of information provided (but without investigation of driving records and other relevant information), prospective drivers with prospective riders. The undersigned hereby agrees that XYZ Co. will not be liable nor any action taken or omitted in good faith by the above parties or their agents and employees in connection with the "Commuter Club" service. The undersigned agrees to assume all responsibility for contacting, investigating and driving or commuting with the persons whose names are furnished by XYZ Co., and to release of the name and telephone number of the undersigned to any potential driver or rider selected by the XYZ Co.
>
> Signature_____

RESPONSIBILITY

It should be understood by all persons using the carpool project service that its sole function is to match, on the basis of information provided (but without investigation of driving records and other relevant information), prospective drivers and prospective riders. The person using this service agrees that (sponsor organization) and the Georgia Department of Transportation will not be liable for any action taken or omitted in good faith in connection with the carpool project service. All persons using the carpool project service assume all responsibility for contacting, investigating and driving or commuting with the persons whose names are found on the home zone location file.

E. Taxes on Income from Pooling

In a pool where each individual pays his prorated share of the expenses There are no income tax consequence of pooling. This holds regardless of the share of the driving done by each member provided the driver contributes the same as everyone else. Expenses include gasoline, maintenance, taxes, tolls, vehicle licence fees, depreciation and insurance costs.

Example: A four man pool drives 8000 miles during the year pooling to and from work. A single vehicle is used belonging to one of the four. This vehicle (a sedan) is also driven 6000 miles per year by the owner for other purposes.

Gasoline (50¢/gal, 15 mpg)	$467
Maintenance (3¢/mi)	420
Taxes & Tags	80
Depreciation	1000
Insurance	200
	$2167

Pool share = $2167 \left(\frac{8000}{14000}\right) = \$1238$

Individual share = $\frac{1238}{4} = \$309.50$/year

This comes to 25.79/month or $1.24/day based on 250 working days per year.

It is the authors opinion that if the driving responsibilities were shared sufficiently equally so that the participants were agreeable to no exchange of cash (or gifts) to equallize things, then no such calculation as above would be required. One could safely assume no one was making a profit.

Some of the expenses listed are infact deductions against income for the owner of the car. In principle, these deductions should also be shared.

Example: In the previous example, the deductable items are

Gasoline tax (11¢/gal)	$103
Property tax	70
	$173

Pool share = $ 99
Individual share = $24.71/year
In the 30% bracket this is $7.41/year/person reduction in income tax.

In practice, the reduction in the prorated expenses to reflect income tax benefits could be passed on to the riders.

One expense has been deleted in the above examples. That is the cost of money or interest expenses. This can be considerable in todays context of high interest rates. A person buying a car on time will generally pay at least 12% interest on the unpaid balance. This expense could also be prorated to the passengers, to the extent that it is actually paid, in the authors opinion. It now becomes more important to also share the income tax deduction.

If a fee is paid by an employer to an employee as an incentive to pooling such a subsidy is income to the employee.

More complex pooling forms, van-pools and buspools, are by PSC regulations and by virtue of the need to compensate the driver best treated as ordinary businesses for income tax purposes.

The official IRS position on carpooling seems to be the following.

> It has long been the position of the Internal Revenue Service that a carpool arrangement in which the members share the responsibility for furnishing transportation to and from their places of work and each takes his turn at driving his own automobile is not an arrangement which gives rise to taxable income or deductible expenses. The Service has been asked whether the same rule applies to a carpool arrangement in which only one member uses his own automobile and his fellow members pay him a stated sum of money for transporting them to and from work.
>
> It is the position of the Service that money received by an automobile owner from fellow employees for transporting them to and from work constitutes reimbursement by them for their share of the personal expenses incurred in the operation of the automobile for their mutual convenience. Such money is not includible in computing the gross income of the automobile owner for Federal income tax purposes. The automobile expenses incurred by him in commuting between his home and place of employment are personal expenses for which no deduction is allowed for Federal income tax purposes. However, this Revenue Ruling is not intended to apply to the situation where a particular car owner has developed his carpool arrangements to the extent that he can be said to have established a trade or business of transporting workers for hire from which a profit is derived. [7]

Appendix I

Survey of Largest Auto Insurers in Georgia

Summary

Nine of the ten largest automobile insurers in the state of Georgia were contacted by letter. This letter had two attachments. One attachment presented six hypothetical ride sharing situations. The second asked a series of questions about insurance in such situations. From the five constructive responses received the conclusions are as follows:

1. Insurance is available for all pooling situations.
2. The rates quoted for van-pools and bus-pools vary widely.
3. Institutionalizing pooling doesn't affect coverage.
4. In an ordinary carpool the incidental sharing of the auto for daytime trips (other than the commute) doesn't jepordize the continuity of coverage provided the driver has availed himself of any available endorsement for driving a non-owned automobile. These endoresements are inexpensive.
5. In institutionalized carsharing for daytime use all drivers must have explicit endorsements on their policies to cover driving of a non-owned automobile since the owners policy will generally not be effective.

The immediately following pages provide the complete background for the above conclusions and infact define several terms used above. The attachments in order are:

1. Typical letter to insurance company president.
2. Hypothetical ride sharing situations.
3. Insurance questions.
4. Tabular summary of responses.
5. Complete responses deleting all information which would directly identify the company.

The letters A through F are used to designate the six responses. The order is by date of response.

GEORGIA INSTITUTE OF TECHNOLOGY
ATLANTA, GEORGIA 30332

SCHOOL OF
MECHANICAL ENGINEERING

May 27, 1974

Typical Letter

Norman L. Gidden, President
Government Employees Insurance Co.
Government Employees Ins. Operations Bldg.
Washington, D. C. 20015

Dear Mr. Gidden:

This letter and its attachments requests information of you which will be very helpful in creating a framework of improved urban transportation in Georgia. In particular, it requests information about the insurance problems of people engaged in carpools, van-pools and bus-pools.

The information is needed to satisfy the requirements of a study commissioned by the Georgia Department of Transportation. As you know pools are recognized as an important element in controlling energy consumption, rush hour conjestion and air pollution in our cities. Therefore, as one of the ten largest auto insurers in the State of Georgia your response will be most important in helping to resolve several important societal problem areas.

There are two attachments to this letter. One postulates several situations which may arise in ride sharing (pooling) situations and the second poses several questions related to insurance coverage for participants in these situations. Clearly some of the situations posed contemplate significant deviations from current practice. However, since they have promise of large social benefits I hope you will be able to make a considered response. Please feel free to extend your answers to the specific questions to cover related questions which you feel are important and to make suggestions which would modify the situations posed so as to lessen insurance problems while retaining the intent.

Please feel free to call me at 404-894-3255. I would also be happy to visit your local office, if that would be helpful.

Sincerely yours,

Steve Dickerson
Associate Professor &
Principal Investigator, Pooling
Research Project

SD:gc
cc: Insurance Commissioner,
Mr. Leland Veal, Chief,
Ga. DOT

HYPOTHETICAL RIDE SHARING SITUATIONS

1. Standard Car Pools

1a. A. Pool, B. Pool, C. Pool and D. Pool ride together to work daily. Each shares the driving responsibility and when driving uses his own car. No money changes hands between the participants.

1b. A. Car, A. Pool, B. Pool and C. Pool ride together daily to work. The three riders pay Mr. Car an amount equal to 1/4 of the total cost of the trip to and from work. This total cost includes a prorated share of depreciation and insurance cost as well as the actual operating cost including gasoline and maintenance.

2. Van Pool

A. Van drives to work a van each day. This van has seats for a total of 15 people. On a typical day there are 10 passengers in the van plus the driver. These 10 passengers are selected from a somewhat larger group of 14 potential passengers who have banded together with Mr. Van to provide themselves with lower cost and more convenient transportation. Thus on any given day there may be as many as 15 people in the van. However, on an average day there are 11 people in the van. There is a charge to the passengers sufficient to pay for the van including both capital and operating. Mr. Van isn't paid anything to drive however, he does get a free ride to and from work as well as the use of the van for his personal use on evenings and weekends for which he only pays for gas and a prorated share of the maintenance. For this use he drives an average of 8,000 miles per year. The round-trip commute to work is 32 miles per day, 250 days per year, for an additional

8,000 miles per year.

3. Bus Pool

A. Bus drives a bus to and from work each day. On a typical day there are 20 passengers on the bus plus Mr. Bus. These 20 passengers are drawn from a group of 30 people who have banded together with Mr. Bus in order to provide themselves with more reasonable and convenient transportation. There is a charge for the round-trip which is sufficient to cover the entire cost of the bus both capital and operating as well as a $5 fee paid to the driver to drive each round trip. He nor anyone else uses the vehicle for other trips. The total annual mileage is 8000.

4. Institutionalized Pools

In any of the situations 1, 2 or 3 above, the group involved in the pool would not need to be limited to the use of one vehicle. Rather several vehicles from their residential area to their employment area would make the trip each day. Members of the group involved make reservations on any vehicle where space available. In order to maintain the group there is a degree of advertising in order to recruit new members. Drivers are paid as indicated in the previous situations however the charge to passengers includes a charge for administrative expenses.

5. Car Sharing

5a. Corresponding to situation 1a. the people in the car pool have an arrangement to use each other's cars during the working hours for such incidental trips as may be required. For this the owner of each car is reimbursed on a cost basis by the user of the car. This reimbursement is sufficient to cover the total average cost for the use of the car for that

mileage. (Typically a number about 15¢ per mile).

5b. Corresponding to situation 1b., the members of the car pool borrow Mr. A. Car's car from time to time during the working day for incidental trips. For this privilege they pay Mr. A an amount equal to the average cost of operating a car on a mileage basis as in the situation 5a above.

6. Institutionalized Car Sharing

Mr. A.Pool when at work without his car needs to go to the dentist. Through a car sharing organization of which both he and Mr. A.Car are members he rents Mr. A. Car's car for $1 plus 15¢ per mile for a short trip. The arrangement for this rental are made through a central organization which is aware of the availability of Mr. A's car and which extracts a portion of the rental charge to maintain its operation and pays Mr. Car the balance.

Insurance Questions

Assumptions: Only public liability, property damage, collision and medical expenses are of interest.

All drivers of vehicles are insured .

Assume that all vehicles are garaged in the Atlanta Georgia metropolitan area.

All drivers of vehicles are appropriately licensed and have good driving records. (Sufficiently good to qualify themselves for the best insurance rates).

Van-pool and bus-pool drivers have received special training modelled after school bus driver training.

Answers to these questions are the results of best judgement and are not to be considered quotes or obligations.

1. What would be your rate for

   a. $100,000/1,000,000 Public Liability
   b. $10,000 Property Damage
   c. $100 Deductible Collision
   d. $2,000/10,000 Medical

   in each of the cases 1a, 1b, 2, 3 and 4? Would any of the rates be lower if Georgia had a law making all passengers in all of these situations legally guests of the driver? What would be those lower rates?

2. In the situation 5a, 5b, and 6 would your company pay the claims

   a. if the driver of the car had your standard policy?
   b. the owner of the car had your standard policy?

3. If the answer to 2a is no in any of the situations, do you have available a rider for your standard policy which would extend coverage to an automobile owner when he rented a car under the circumstances cited? If so, what would it cost?

Tabular Summary of Responses

Rates	1a carpool share driving	1b carpool one driver	2 vanpool	3 buspool	4 institutionalized pools
1a.					
$100K/1M Bodily Injury	74.90(A)[1]	74.90(A)[1]	PC(A)	PC(A)	PC(A)
	14.00(C)[4,5]	88.20(C)[3,5]	171.00(C)[4,5]	PC(C)	(C)[6]
	44.00(D)[7]	72.00(D)[7]	PC(D)	PC(D)	(D)[6]
	67.00(E)[8]	76.(E)[8]	196.00(E)	196.00(E)	(E)[6]
	66.00(F)	76.00(F)	424.00(F)	528.00(F)	(F)[6]
$10K Property Damage	34.10(A)	34.10(A)			
	41.00(D)[7]	41.00(D)[7]			
	55.00(E)[8]	62.00(E)[8]	124.00(E)	124.00(E)	
	56.00(F)	64.00(F)	55.00(F)	75.00(F)	
$100 Deductible Collision	48.30(A)[2]				
	58.00(C)[3]	73.00(C)	63.60(C)		
	96.00(D)[7]	96.00(D)[7]			
	95.00(E)[8]	104.00(E)[8]	105.00(E)[9]	105.00(E)[9]	
	90.00(F)	104.00(F)	373.00(F)[10]	466.00(F)[11]	
$2000 Medical Payment	7.30(A)				
	8.00(C)[3]	9.80(C)[4]	14.80(C)[4]		
	15.00(D)	15.00(D)			
	13.00(E)	14.00(E)	32.00(E)	32.00(E)	
	8.00(F)	4.00(F)	72(F)	88 (F)	

Totals	1a	1b	2	3	
	164.60(A)	164.60(A)			
	154.60(C)	196.80(C)	249.40(C)		(C)[6]
	196.00(D)	224.00(D)			(D)[6]
	230.00(E)	256.00(E)	457.00(E)	457.00(E)	(E)[6]
	220.00(F)	253.00(F)	924.00(F)	1157.00(F)	(F)[6]

Notes on Rates

PC	responding company considers this "public conveyance" and no rate given.
1	100K/300K
2	assumes average auto, 3 years of age
3	30 miles or less/week for commuting
4	100 miles or greater/week for commuting
5	includes $10K property damage
6	same as 1a, 1b, 2 and 3 for all insurances offered
7	assume 1974 Ford 4 dr. LTD, 10 miles or more one way commute
9	assumes $5000 value
10	assumes $20,000 vehicle
11	assumes $30,000 vehicle

Effectiveness of Policies in Car-Sharing Situations

	5a & 5b carpools	6 institutionalized
Is driver's policy effective?	Yes (A) No (C)[2] Yes (D) Yes (E) Yes (F)	Yes (A) No (C)[2] No (D) No (E)[3] No (F)
Is owners policy effective?	Yes (A)[1] No (C) Yes (D) Yes (F)	No (A) No (C) No (D) No (F)[4]

Notes on Effectiveness

1. Qualified, if use by non-owner is "continuous"
2. Endorsement available to insure driver (and owner) for $7.60 annually
3. Coverage applies if use is "casual and infrequent". Endorsement available for $12 to cover liability.
4. Coverage would be available for $1040/year.

All respondees who addressed the question agree that if the owner's policy is effective it is primary and any driver held insurance is secondary.

June 10, 1974

Mr. Steve Dickerson
Pooling Research Project
Georgia Institute of Technology
School of Mechanical Engineering
Atlanta, Georgia 30332

Dear Mr. Dickerson:

We have compiled answers to the questionnaire sent to us. There were two main difficulties experienced in completing the task. First, some of the coverages or limits of coverage quoted are not written b | In these cases, we have substituted the coverage written in the usual amounts carried.

Second, some of the hypothetical situations presented are ambiguous. Our responses are thus qualified to represent our particular interpretation of the stated sequences of events on a very general level.

Our particular responses are as follows:

1. Rates are available for situations 1a and 1b only. Situations 2, 3, and 4 would be excluded from coverage with this Company since the vehicles in these cases are used for public conveyance. The first rate quoted is for Bodily Injury Liability and not Public Liability; coverages quoted are those commonly available a | Similarly, the coverage limits for Medical Payments have been adjusted to those offered in this Company.

a.	Bodily Injury	$100,000/$300,000	$74.90
b.	Property Damage Liability	$10,000	$34.10
c.	$100 Deductible Collision (assumes average vehicle value for an auto 3 years of age)		$48.30
d.	$2,000 Medical Payments		$ 7.30

The quoted rates would not be lower if Georgia were to pass a Guest Statute. In an actuarial context, however, there may be a long-term reduction in the loss experience which may make lower rates possible.

Mr. Steve Dickerson

2. Our responses to question #2 are given in terms of the operator of the auto or the owner of the vehicle carrying coverage with this Company.

Operators. According to standard automobile contracts, any person using the auto with the permission of the named insured is, by definition, an insured. Thus, would be liable for the claims under situations 5a, 5b, and 6.

Owner. In situations 5a and 5b coverages will usually be provided for the owner. The fact that there might be continuous use of the auto by a party not named on the policy might jeopardize coverage. With continuous use of this nature, it is expected that the named insured should report the lending of the auto so that the Company does not suffer from an unknown increase in hazard.

We feel that in situation 6, however, coverages would be void. The particular exclusion pertinent to this case is difficult to determine. Some argument can be made that the vehicle is being used for livery even if it is not offered to hire to the general public.

3. No such rider is available

If any additional information is needed, please feel free to call me at

June 14, 1974

Mr. Steve Dickerson
Associate Professor
Georgia Institute of Technology
Atlanta, Georgia 30332

Dear Mr. Dickerson:

We have reviewed the Insurance Questions and Hypothetical Ride Sharing Situations which you had sent to on May 27.

Due to the manner in which most of the situations and questions are structured, we do not feel it is possible to provide definitive answers on an individual company basis. However, we certainly wish to cooperate and we are forwarding a copy of your letter and attachments to Mr. Paul C. Blume, Vice President and General Counsel of the National Association of Independent Insurers, our trade association, requesting that the Association give your study further consideration.

Sincerely yours,

June 17, 1974

Mr. Steve Dickerson
Associate Professor & Principal Investigator,
Pooling Research Project
Georgia Institute of Technology
School of Mechanical Engineering
Atlanta, Georgia 30332

Dear Mr. Dickerson:

Enclosed is our response to the "Insurance Questions" submitted with your correspondence dated May 27, 1974, directed to

You will note that it was necessary to make certain assumptions in providing some answers. Hopefully, our answers can be of benefit to the Georgia Department of Transportation Study.

We appreciated the opportunity to participate in this study and if we can be of future assistance please call upon us.

Very truly yours,

enc.

Response to "Insurance Questions" Submitted by Pooling Research Project, Georgia Institute of Technology, Letter dated May 27, 1974.

Assumptions: Only public liability, property damage, collision and medical expenses are of interest.

All drivers of vehicles are insured.

Assume that all vehicles are garaged in the Atlanta, Georgia metropolitan area.

All drivers of vehicles are appropriately licensed and have good driving records. (Sufficiently good to qualify themselves for the best insurance rates).

Van-pool and bus-pool drivers have received special training modelled after school bus driver training.

Answers to these questions are the results of best judgment and are not to be considered quotes or obligations.

Additional Assumptions Necessary:

We have further assumed that: (i) all operators of the vehicles are married and over 25; (ii) tha total annual mileage on each vehicle is over 7,500; and (iii) the cars are 1972 Chevrolet Impalas, the van a 1972 Dodge Maxi Wagon.

1. What would be your rate for

   a. $100,000/1,000,000 Public Liability
   b. $10,000 Property Damage
   c. $100 Deductible Collision
   d. $2,000/$10,000 Medical

   in each of the cases 1a, 1b, 2, 3 and 4? Would any of the rates be lower if Georgia had a law making all passengers in all of these situations legally guests of the driver? What would be those lower rates?

ANSWER: Our current annualized premiums for cases 1a and 2 are shown on the attached exhibit. In case 1b, the rates would be the same as for 1a, provided the total reimbursement to Mr. Car is 15¢ per mile or less. If the reimbursement is between 15 and 25¢ per mile, the rates for Liability and Medical coverage would be 20% higher. If the reimbursement exceeded 25¢ per mile, we would regard the vehicle as a Public Automobile, and it would not be eligible for insurance with The latter is true also of bus-type vehicles (Case 3); therefore, no rates are shown for Case 3.

Case 4 does not present any particular problems. The availability of coverage is dependent only on the per mile reimbursement, as indicated above, and the rate is dependent on the number of transported passengers. (20% extra if 8 or less, 50% if more than 8.)

If the Guest Statute were extended to passengers in these situations, the Liability rates could be reduced somewhat. In practice, though, this adjustment would take place over a period of time, reflecting the normal causal relationship between the actual experience incurred and the rates used. Any such reduction would, in large part, be offset by a corresponding increase in the Medical rates. Further, the degree of such reduction would be highly dependent on the amount and type of other use for the specific vehicle involved.

2. In the situation 5a, 5b, and 6 would your company pay the claims

a. if the driver of the car had your standard policy?
b. the owner of the car had your standard policy?

ANSWER: (2a): If there is no primary coverage on the vehicle, coverage is presently extended to the insured driver only if his use of the non-owned vehicle is "not frequent or regular." If otherwise, liability and medical coverage could be provided by endorsement, for an additional $7.60 annually.

(2b): The described usages, though slightly different in each case, appear to fall in the category of "rented to others" and therefore, coverage would not apply to the owner by his State Farm policy.

3. If the answer to 2a is no in any of the situations, do you have available a rider for your standard policy which would extend coverage to an automobile owner when he rented a car under the circumstances cited? If so, what would it cost?

ANSWER: Coverage is presently extended to the insured driver only if his use of the non-owned vehicle is "not frequent or regular." If otherwise, liability and medical coverage could be provided by endorsement, for an additional $7.60 annually. This coverage would extend to the owner as well as the driver.

ADDED COMMENT: If the situations described in Question 2 became commonplace, we would undoubtedly re-evaluate our current practices. But to the extent coverage were to be made available, we might provide for a substantial surcharge in such cases since the added exposure is significant. Particularly in Situation 6, we would have virtually no knowledge as to who would be driving the vehicle, how often, or how it might be used.

We trust the foregoing adequately responds to your areas of inquiry. To assist in your comparison with non-car-pool usage, we have included the current rates for several other use classifications on the attached exhibit. Please advise if there are additional questions.

Annualized Premiums, Atlanta, Georgia

Vehicle:	1972 Chevrolet Impala			1972 Dodge Maxi-Wagon	
Use:	Pleasure, or Commute - 30*	Commute 30 - 100*	Commute 100*	Commute 100* No more than 8 Passengers	More than 8 Passengers
Liability (100/1,000/10)	$88.20	$99.20	$114.00	$136.80	$171.00
Medical ($2,000**)	8.00	8.80	9.80	11.80	14.80
$100 Ded. Collision	58.40	65.60	73.00	63.60	63.60
	$154.60	$173.60	$196.80	$212.20	$249.40

These rates would be reduced approximately 15% if the annual mileage is 7500 or less.

* Average weekly use for commuting to and from work (including participation in car pools) is 30 miles or less, 30 to 100 miles, or over 100 miles, respectively.

** $10,000 Limits are not available. $25,000 is available at two times the rate shown.

June 20, 1974

Mr. Steve Dickerson
Associate Professor & Principal Investigator,
Pooling Research Project
Georgia Institute of Technology
225 North Avenue, N.W.
Atlanta, Georgia 30332

Dear Mr. Dickerson:

Enclosed find answers and information as requested in your letter of May 27, 1974. If you have any further questions or information needed, please contact, Vice President - Underwriting, at the above address, he will be glad to assist you in any way possible.

Trust you find the enclosed satisfactory.

Sincerely,

enclosure

1. Standard Car Pools

a.
(A)	$ 44.00
(B)	41.00
(C)	96.00
(D)	15.00
	$196.00

b.
(A)	$ 72.00
(B)	41.00
(C)	96.00
(D)	15.00
	$224.00

The above rates are based on a 1974 Ford 4 dr. LTD driven to work 10 or more miles one way.

The type law you refer to concerning passengers should lower liability rates in situations 2, 3, and 4. I could not guess how much, as we are not presently engaged in underwriting this type coverage. I would not classify situation 1. as "livery".

2. Van Pool

This example would come under the definition of a public or private livery conveyance. At this time, we are not filed with the Insurance Department to write this type coverage.

3. Bus Pool

Same as 2.

4. Institutionalized Pools

The answers shown in situations 1, 2, and 3 would be the same for this example.

5. Car Sharing

a. Under the standard policy an owner may lend his automobile to another person.

(1) The driver's policy would be excess.
(2) The owner's car would be primary.

Claims would be paid under (1) first and (2) second. In this case, there would be no need for endorsements as this would not be like a car that was for hire or to be rented.

b. Same as a.

6. Institutionalized Car Sharing

This case would be like a car for hire, or lease, and would be excluded from standard coverage, unless this use of the car was reported to the company as rated for this purpose. We are not filed to write this type coverage.

June 21, 1974

Mr. Steve Dickerson
Associate Professor &
Principal Investigator -
Pooling Research Project
Georgia Institute of Technology
School of Mechanical Engineering
Atlanta, Georgia 30332

Dear Mr. Dickerson:

This will reply to your letter of May 27 directed to the subject of your research on urban transportation in Georgia.

While your assumptions in the attachment, "Insurance Questions", are reasonable and logical, we have taken the liberty of amending your interest to include full Comprehensive coverage which is traditionally purchased as a companion coverage to Collision. In addition, the Medical Payments limit is assumed to be $2,000 per person since such limit applies irrespective of the number of persons injured in an accident, i.e., there is no aggregate limit.

In connection with our answers to the "Insurance Questions", we further assume that, with respect to the private passenger cars, (1) there are no youthful drivers, (2) the distance to and from work is over ten miles one way, (3) the average annual mileage is 12,000 or less, (4) there is no business use and (5) the cars are 1973 standard sized vehicles.

As far as the van and bus are concerned, it is assumed that there is no other commercial use to which these vehicles are put, their value approximates $5,000, they are 1973 models and there is no more than one round trip per day.

Answers to Insurance Questions:

1.1a	B.I.	76
	P.D.	62
	Coll.	104
	M.P.	14
	Comp.	39
		295
1.1b	B.I.	67
	P.D.	55
	Coll.	95
	M.P.	13
	Comp.	35
		265

1.2	B.I.	196
	P.D.	124
	Coll.	105
	M.P.	32
	Comp.	34
		491
1.3	B.I.	196
	P.D.	124
	Coll.	105
	M.P.	32
	Comp.	34
		491

1.4 Same rates as in 1a, 1b, 2 and 3 respectively.

You inquired regarding the impact on rates were the Georgia guest law made more stringent. This question is difficult if not impossible to answer. However, we believe that the difference would be inconsequential, and this observation is based on developments in other states where the converse has obtained. California, for example, recently repealed its guest law (perhaps as stringent as any in the United States), and the best estimates made as to the rate impact out there amounted to a 5% to 10% increase in bodily injury liability premiums.

2.5a, 5b, 6 and 3. These questions are not completely clear. However, we will attempt to answer them generally so as to cover all contingencies. With respect to the borrowed car in all three instances, coverage will apply on a primary basis under the policy (the owner's policy) insuring such car. Coverage under the borrower's (who is not the owner) policy would depend on the frequency of use or availability for use of the borrowed or rented car. If such use were casual and infrequent, the non-owned automobiles coverage under the borrower's policy would apply on an excess basis, i.e., the owner's insurance comes in first. If, however, there is a question as to whether or not such use will truly be limited, it would be advisable for the borrower to purchase additional non-owned automobile coverage under his own policy. Our annual premium charge for this extension generally is $8 B.I. and $4 P.D. From the tone of your hypothetical ride sharing situations, however, you seem to pre-suppose that all automobiles are insured. If such is the case, coverage applies to all permissive users, and the possibility of impairment seems remote.

We trust that the foregoing adequately answers your inquiry. If we can be of further assistance, please do not hesitate to write.

Sincerely,

June 24, 1974

Steve Dickerson, Associate Professor &
Principal Investigator, Pooling Research Project
Georgia Institute of Technology
Atlanta, Georgia 30332

Dear Professor Dickerson:

Your letter of May 27, 1974 ... / was referred to me since the general subject of car pooling comes within my purview. I regret the apparent delay in responding, but it took longer than anticipated to pull all the pieces together.

We appreciate the reasons for your survey/study, and we are pleased to participate in your research. We do so with the understanding that some of the hypothetical situations you have outlined do, as you say, contemplate significant deviations from current practices to the extent that some of the answers must of necessity be based on judgment rather than on experience.

In view of the above, it is our assumption that the responses from each insurer will be used to obtain an overall consensus and that it is not your intent or the purpose of the study to correlate the identity of each insurer with its expressed position on the hypothetical situations.

And now to answer your three insurance questions.

Question No. 1 - Our rates (premiums) are as follows:

Situations 1a and 1b - For each we used a 1973 Chevrolet Impala symbol 5 age group 2, Family Auto policy, Safe Driver sub class zero, and driving eight miles one way to work.

Coverage	Premium 1a Situation	Premium 1b Situation
$100,000/1,000,000 BI	$66	$ 76
10,000 PD	56	64
100 Ded. Coll.	90	104
2,000 Medical	8	9
10,000 Medical	19	22

The premiums under 1a are lower since this arrangement meets our qualifications for "car pool" rating whereby the "Use" classification is dropped down one step from "Driving to work less than 10 miles" to "Pleasure Use."

The 1b situation does not qualify for "car pool" rating under our program since the automobile is not used on a rotating basis with vehicles of at least two other persons.

Situation 2 - This is rated as a 15-seat "Limited Passenger Service Bus," and for collision we assumed a new $20,000 vehicle.

Coverage	Premium
$100,000/1,000,000 BI	$424
10,000 PD	55
100 Ded. Coll.	373
2,000 Medical	72
10,000 Medical	107

Situation 3 - This is rated on the same basis as Situation 2 except we presupposed a seating capacity of 21-30 and a new $30,000 bus.

Coverage	Premium
$100,000/1,000,000 BI	$528
10,000 PD	75
100 Ded. Coll.	466
2,000 Medical	88
10,000 Medical	129

Situation 4 - We don't see how this could apply to Situation 1a or 1b. As it relates to Situations 2 and 3, the fact that reservations are taken would make no difference in the rating. Premiums would be exactly the same as for Situations 2 and 3 above.

As respect to the possibility of lower rates if Georgia had a law making all passengers in the above situations legally guests of the driver, we believe this question becomes irrelevent with the advent of No-Fault effective in March of 1975.

Question No. 2 - In Situations 5a and 5b, we would provide coverage for both the owner and the driver provided the use of the vehicle is part of the carpool arrangement or plan and is not the "hiring his car to others" as expressed in press release of December 5, 1973, - copy attached. Each case would have to be interpreted on an individual case basis, but in the absence of any "profit" implications the public or livery conveyance exclusion would not come into play.

In Situation 6, the car owner appears in fact to be in the business of hiring his car to others for profit, and consequently the public or livery conveyance exclusion would apply to deny coverage to both owner and driver.

Question No. 3 - As respects the negative answer to Situation 6 in Question No. 2 above, the car owner's standard (Family Automobile) policy could not be endorsed to provide coverage for the rental operation. Coverage would have to be provided under a Basic policy and the car rated as a "Club Livery Automobile." The resulting premiums for this exposure would be:

Coverage	Premium
$100,000/1,000,000 BI	$640
10,000 PD	143
100 Ded. Coll.	153
2,000 Medical	104
10,000 Medical	151

Frankly, we doubt that many car owners would be willing to permit their cars to be driven by anyone who just happened to have a need and especially if such use resulted in substantially higher premiums which would appear to more than offset the relatively modest dollar profit.

The answers to each of your questions are based on the "Assumptions" you listed, our manual rules/rates, and in some situations our best judgment. We hope they will be helpful to your study, and if you need any additional explanation, we shall be glad to oblige as best we can.

Very truly yours,

attachment

APPENDIX II - REFERENCES

1. Georgia Public Service Commission, Laws and Rules, Jan. 1, 1973.

2. Code of Georgia, Annotated, Book 17, Title 56 (Insurance) with 1973 Cumulative Pocket Pact, The Harrison Company, 1971.

3. The National Underwriter, Feb. 15, 1974 and unknown date

4. "News from the Insurance Services Office" Various releases.

5. The "Pool It" Work Kit, Highway Users Federation for Safety and Mobility, 1974.

6. Vanpools, U. S. Dept. of Transportation, Jan. 1974.

7. Legal and Institutional Issues of Carpooling, U. S. Dept. of Transportation, Jan. 1974

Persons Interviewed

Mr. Tom Doyal, Public Service Commission (Georgia)

Mr. Frank Parker, Atlanta Claims Council

Mr. Stephen Gossett, Insurance Information Institute

Mr. Briscoe Soderman, Fulton Co. Schools

Mr. William Griggers, Fulton Co. Schools

Appendix III

LEGAL PRECEDENCE WITH REGARD TO THE MEANING OF "PUBLIC LIVERY AND CONVEYANCE"*

*The citations were furnished to the author at no cost. They are not to be considered the results of a definitive, search nor should their interpretation be made without further consultation with a lawyer.

Mc Daniel v. Glens Falls Indem. Co., 733 I11. App. 596, 78 NE 2d 111

Automobile was not used as a "public" or "livery conveyance" within automobile liability policy excluding coverage while thus used, merely because insured, in making a trip for her own pleasure and business, carried for compensation riders selected by her from among persons presented by travel agency.

"Public conveyance" means a vehicle used indiscriminately in conveying the public, without limitation to certain persons or particular occasions or without being governed by special terms.

Allor v. Dubay, 317 Mich. 281, 26 N. W 2d 772, 774

Automobile used pursuant to share-the-ride arrangement under which driver's fellow employees paid for transportation to and from work was not a "public conveyance" or "livery conveyance," within provision of automobile liability policy excluding liability for damage inflicted while automobile was used as public or livery conveyance.

"Public conveyance," as used in automobile liability policy excluding liability for damage inflicted while automobile is used as public or livery conveyance, means a vehicle used indiscriminately in conveying the public without being limited to certain persons and particular occasions or governed by special terms, and the words "livery conveyance" have about the same meaning.

Pimper v. National American Fire Ins. Co., 139 Neb. 109, 296 NW 465,467; Elliott v. Behner, 150 Kan. 876, 96 P 2d 852, 857

An automobile in which owner took a trip with acquaintances who were to pay part of the expenses was not a "public conveyance" or "livery conveyance" within meaning of automobile insurance policy exclusion.

Same definitions as used in Allor

American Fidelity Fire Ins. Co. v. Pardo, 299 NYS 2d 521, 523, 32 A.D. 2d 536

Same definitions of public and livery conveyances

Lakeshore Development Corp. v. Gulf Ins. Co. 353 F2d 163, (5th Cir, 1965)

Insured motor hotel's use of station wagon as "courtesy car" transporting guests to and from local airport and occassionally to other points was not excluded use within provision of policy excepting coverage "while the automobile is used as a public or livery conveyance."

Under La. law phrase "public or livery conveyance" means indiscrimnate holding out of vehicle for public use and is intended to cover such vehicles as taxicabs and buses which are used ordinarily for purpose of public conveyances, although meaning is not limited to taxicabs or buses but includes using of any other vehicle where operator uses vehicle as means of conveying members of public usually for price but without discrimination as to persons within class of persons to be transported.

Cited in: 404 SW 2d 909.

Georgia Cas. and Surety Co. v. Turner, 87 Ga. App. 618, 74 S.E2d 665 (1953)

Loan of truck with provision that user put gas in it did not come within exclusion. p. 666 "To come within the terms of the exclusion and thus be exempted from coverage, such vehicle described in the policy must be used indiscriminately, or at least generally, in conveying the public, or must be held out to the general public as a vehicle for carrying persons for hire, and so used on one or more occassions."

Couch on Insurance, 2d

§42:554 "The term 'public conveyance,' as used in a policy of automobile collision insurance excluding liability when the insured automobile is used as a public conveyance, means a vehicle used indiscriminately in conveying the public, rather than being limited to certain persons and particular occasions or governed by special terms. The words imply the holding out of the vehicle to the general public for carrying passengers for hire. The words "livery conveyance means about the same thing."

Annotations: 95 ALR 150, 118 ALR 393, 147 ALR 632

§ §45:1040

"In constrving an exclusion of use of a vehicle as a public or livery conveyance, the term 'public' must be given its plain and ordinary meaning. To be a 'public conveyance' requires the indiscriminate use of the vehicle in conveying the public, and a holding out of the vehicle to the general public for the carrying of passengers for hire, since the applicability of the exclusion as to the use of the automobile as a public or a livery conveyance depends upon whether the insured vehicle is, in fact, generally available to the public."

Annotation: 30 ALR2d 279

"The vehicle is not a public conveyance where its use with respect to others is limited to particular persons and particular times, and is governed by special terms.

Virtually the same meaning is to be given to 'livery conveyance' as is given to public conveyance.'"

"An exception stated in terms of use as a public or livery conveyance is much narrower in scope than the various exclusionary clauses referring to carrying passengers for compensation, consideration, or a charge, under which compensation will relieve the insurer from liability regardless of whether the vehicle is used as a 'public conveyance'".

§45:1043

"A vehicle is not used as a public conveyance within the meaning of the exclusion clause if it is not held out for hire to the general public but is used only for the transportation of a certain group of persons."

§45:1046

"The fact that money has been paid or will be paid is not controlling in determining whether an automobile is used as a public or livery conveyance within the meaning of a policy exception.

§45:1047

"The use of an automobile under a coemployee car-pool plan does not constitute use as a public or livery conveyance, although each member of the pool makes a weekly payment for a share of the transportation cost."

Allstate Ins. Co. v. Roberson, 217 F2d 10 (8th Cir. 1954)

An insured who owned a truck with seats fitted in the rear and used it to travel to his place of employment about 10 miles distant, and customarily transported coemployees who contributed money for their share of expenses, but who did not solicit riders and did not hold the truck out to the public for hire, was protected under a liability policy notwithstanding an exclusion provision in the policy as to the use of the truck as a public or livery conveyance.

See Appleman, Insurance Lae and Practic §3207

Review of

SELECTED CARPOOLING EFFORTS IN THE ATLANTA, GEORGIA METROPOLITAN AREA DURING THE ENERGY CRISIS OF 1973-74

prepared by

Stephen L. Dickerson
School of Mechanical Engineering
Georgia Institute of Technology

under

Contract with
DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA
in cooperation with
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

Georgia DOT Contract No. 5-74
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Summary

This report summarizes five carpooling programs initiated in late 1973 and early 1974 in the Atlanta region. Those five programs are

	Estimated Cars Removed
KLASS KARPOOL	32
Georgia Tech Employees	80
Georgia DOT Commuter Club	33
Texaco Employees	54
Western Electric Employees (Norcross)	47
	246

The numbers of cars removed are based on various methods of estimation and may not accurately reflect the relative success of the various individual efforts. However, the total of approximately 250 is believed to be a fair estimate of the order of total direct success. Two programs, KLASS KARPOOL and DOT Commuter Club also had significant publicity value which may have promoted a number of pools indirectly.

The author suspects that many other corporate programs are not included. Programs are known to exist for instance in Coca-Cola and Western Electric (Sandy Springs).

Based on a typical benefit-analysis* 250 people removed from automobile traffic has a social benefit of approximately $656,000 per year. The total cost of the five programs was negligible relative to this number.

*based on $5.25/trip, 2 trips/day, 250 days/year. $5.25 (1971 dollars) is the average trip benefit derived from Benefits to the Atlanta Metropolitan Region from the Proposed Reginal Transportation Program, Development Research Assoc., 1971.

Another expression for this benefit is $2625/year/passenger removed from automobile.

Contents

Standard Report Form

POOLING PROGRAMS IN THE STATE OF GEORGIA

Date of Report 6/25/74

Beginning Date of Program approximately Nov. 1, 1974

Program Title Klass Karpool

Principal Contact Ms. Betty Hines or Mr. Steve Dixon, Atlanta Chamber of Commerce
1300 Commerce Bldg. Atlanta, Georgia 30303

Population Subset Involved All commuters in Metro Atlanta

No. of People in Subset Approximately 600,000

No. of People Responding Approximately 2000

No. of People Responding Favorably Approximately 2000

No. of People Matched Up 319

No. of People who Began Pooling 48 est. (15% of matched)

Average No. of Cars Removed from Road/Working day 32 est. (67% of poolers)

Description of Operation Radio (WKLS) and TV (WAGA) were used to solicit mail requests for data form. Also all large companies in the Atlanta area were contacted to circulate forms to employees by the Junior Chamber. Returned data forms were pre-processed by AAA and data punched by a volunteer group. Computer processing was by Compu-Serv Network. Cost is 10¢ which is submitted with data form. Currently under study for revitalization.

Reference Material "Presentation to Employees" package by Chamber of Commerce and Car Pool Task Force roster and minutes of May 9, 1974

PRESENTATION TO EMPLOYEES

PRESENTATION TO EMPLOYEES

The success of a car pool program hinges on changing the feelings and attitudes of individual human beings about themselves and their role in society. The program must be heavily sales oriented and the promotional materials have been designed to assist in this area. However, the most effective sales tool will be the employer's support and encouragement and the interest shown by fellow employees.

I. Letter from the Employer

A cover letter from top management indicating their support and encouraging participation would accompany the materials distributed by inter-office mail.

II. Group Presentation to Introduce Program

If all personnel may be assembled at one time (extended coffee hour), or in selected sections, the materials may be distributed and discussed after an enthusiastic presentation of the program is made. This type of presentation calls for thorough preparation and understanding on the part of the people conducting the meeting. A major advantage of this type of presentation is the feeling of enthusiasm which may be generated, and the fact that questions may be answered for the entire group at one time. If the groups are small, the forms may be filled out in the meeting room and returned as they exit. If not, a specific date should be set as a deadline for forms to be returned.

The goal of any presentation should be to stimulate 100% participation. By taking a few extra steps the employer will greatly increase the chances of accomplishing this goal.

EXAMPLE OF CAR POOL NEWS RELEASE FOR IN-HOUSE PUBLICATIONS:

"Get in the Swim - Car Pool!"

(The name of company) announces a car pool program open to all employees on a voluntary basis.

The Atlanta Chamber of Commerce and the Atlanta Jaycees are sponsoring a car pool promotion and have collected materials about car pooling which are available to you. Their main purpose is to promote car pooling as one means of solving some of our serious fuel and traffic problems in the Atlanta area.

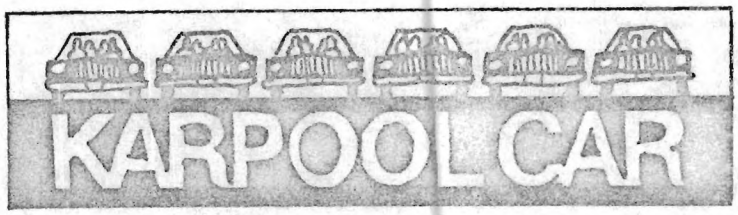
You are encouraged to consider the idea of car pooling with persons who work or live near you. If you do not know anyone interested in car pooling in your area, (name of department) has information on an effort set up by WKLS Radio, WAGA-TV, Georgia Motor Club, and Compu-Serv Network. This is a computer matching service and will depend on good community response in order to have enough participants to match into car pools.

If you would be interested in forming a car pool, fill out the application and map and return to (department). These forms will then be processed through a computer and you will receive a computer print-out of names of potential car poolers. The persons with whom you will be matched will not necessarily be employees of (this company) but will live and work in your vicinity for convenience.

Car pooling is a good idea. It won't work for everyone, but should be seriously considered by anyone who is thinking about what he can do to help his community. Please stop by for your materials today.

CAR POOLING
MATERIALS TO ORDER

1. Bumper Sticker (12" X 3½")



2. Button (actual size)

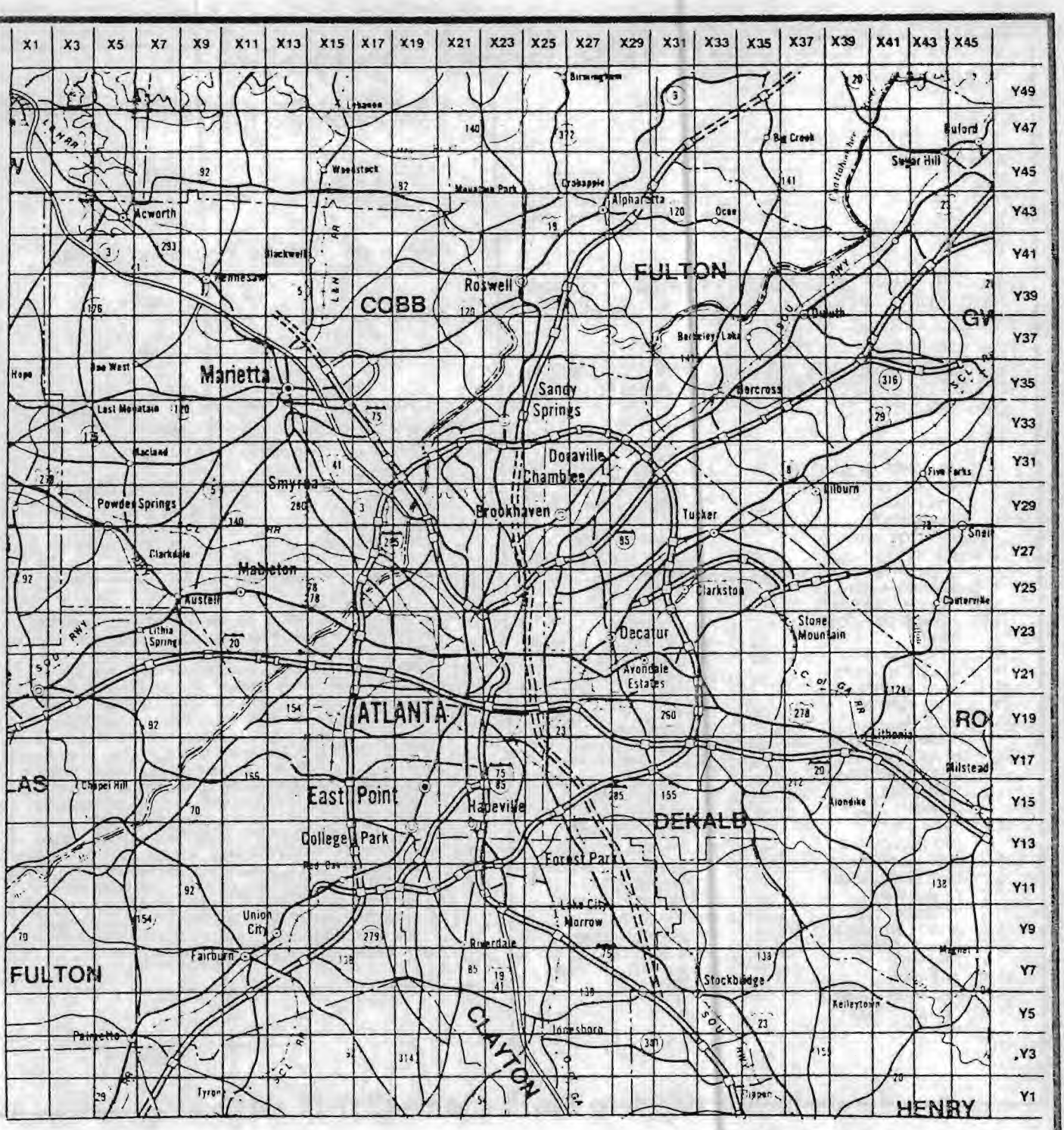
3. Poster (23" X 30")

4. "Get in the Swim" brochure

5. "How the Employer Can Help" brochure

These promotional materials have been designed for your use in setting up a car pool program. If you would like to order them please contact:

Communications Division
Atlanta Chamber of Commerce
1300 Commerce Building
Atlanta, Georgia 30303
Phone 521--0845



KLASS KARPOOL is a service of

INSTRUCTIONS

Please determine your home grid and print the X and Y grid numbers in the spaces provided under question 1 on the questionnaire

Example: If you live in Norcross, your grid would be X33-Y35

TV5 WAGA·ATLANTA

AAA GEORGIA MOTOR CLUB

COMPU-SERV NETWORK

wkls *that's...klass*

Map Reprinted By Permission of Bradford Map Co. From The Greater Atlanta Map Book

Join the Klass Karpool

☐ Ms.
☐ Mr. _____

Address _____

City _____ Zip _____
(Do not omit zip)

Phone _____

1. SEE MAP ON REVERSE SIDE. LOCATE RESIDENCE. PLACE "X" AND "Y" NUMBERS:
X _____ Y _____

2. CHECK THE ONE POINT IN THE FOLLOWING LIST CLOSEST TO YOUR COMMUTING DESTINATION:

1. ☐ PEACHTREE CENTER
2. ☐ BROOKWOOD STATION
3. ☐ BUCKHEAD
4. ☐ CAPITOL AREA
5. ☐ GA. TECH
6. ☐ GA. STATE
7. ☐ BROOKHAVEN
8. ☐ NORTHSIDE DRIVE
9. ☐ PONCE DE LEON SEARS
10. ☐ STADIUM AREA
11. ☐ LENOX SQUARE
12. ☐ SANDY SPRINGS
13. ☐ FIVE POINTS
14. ☐ CYCLORAMA (GRANT PARK)
15. ☐ PERIMETER MALL
16. ☐ FORT McPHERSON
17. ☐ HARTSFIELD AIRPORT
18. ☐ PEACHTREE IND. BLVD.
19. ☐ CIVIC CENTER
20. ☐ COLONY SQUARE
21. ☐ FERNBANK SCIENCE CTR.
22. ☐ GRADY HOSPITAL
23. ☐ AGNES SCOTT COLLEGE
24. ☐ THE OMNI
25. ☐ DECATUR PROPER
26. ☐ REGENCY HYATT HOUSE
27. ☐ EXECUTIVE PARK HOTEL--OFC. PK.
28. ☐ GREENBRIAR MALL
29. ☐ RICH'S US POST OFFICE
30. ☐ FEDERAL RESERVE BANK
31. ☐ NORTH AVENUE COCA COLA CO.
32. ☐ NORTH AVENUE WEST P'TREE
33. ☐ PEACHTREE ST. & 7TH
34. ☐ PERSHING POINT
35. ☐ CHATTAHOOCHEE IND. DISTRICT
36. ☐ CHEVROLET PLANT
37. ☐ FORD PLANT
38. ☐ GM PLANT (DORAVILLE)
39. ☐ GA. BAPTIST HOSPITAL
40. ☐ SPRING ST. & MARIETTA
41. ☐ PERIMETER POINT
42. ☐ NORTHLAKE MALL SHOPPING CENTER
43. ☐ SOUTH DEKALB MALL
44. ☐ MEAD PAPER COMPANY WEST MARIETTA
45. ☐ SEARS DIST. CENTER
46. ☐ ARROW SHIRT CO.
47. ☐ ATLANTA UNIVERSITY
48. ☐ WEST END MALL
49. ☐ INMAN FREIGHT YARD
50. ☐ OTHER _____

3. CHECK THE TIME AT WHICH YOU MUST BE AT YOUR MORNING DESK:

1. ☐ 6:30 AM
2. ☐ 7:00 AM
3. ☐ 7:30 AM
4. ☐ 8:00 AM
5. ☐ 8:30 AM
6. ☐ 9:00 AM
7. ☐ 9:30 AM
8. ☐ Other _____

4. AT WHAT TIME DO YOU LEAVE IN THE AFTERNOON?

1. ☐ 3:00 PM
2. ☐ 3:30 PM
3. ☐ 4:00 PM
4. ☐ 4:30 PM
5. ☐ 5:00 PM
6. ☐ 5:30 PM
7. ☐ 6:00 PM
8. ☐ Other _____

5. CHECK HERE IF YOU NEED THE NAMES OF PEOPLE WHO LEAVE FOR HOME ONE HOUR AFTER YOU NORMALLY DO. _____

6. CHECK YOUR CARPOOL PREFERENCE:

☐ Drive only
☐ Ride only
☐ Alternate driving
☐ All Male
☐ All Female
☐ No Preference

IMPORTANT - It should be understood by all persons using the "Klass Karpool" that its sole function is to match, on the basis of information provided (but without investigation of driving records and other relevant information), prospective drivers with prospective riders. THE UNDERSIGNED HEREBY AGREES THAT WKLS, WAGA, GEORGIA MOTOR CLUB AND COMPU-SERV, INC. WILL NOT BE LIABLE FOR ANY ACTION TAKEN OR OMITTED IN GOOD FAITH BY WKLS, WAGA, COMPU-SERV, INC., GEORGIA MOTOR CLUB AND THEIR AGENTS AND EMPLOYEES IN CONNECTION WITH THE "KLASS KAR POOL" SERVICE. THE UNDERSIGNED AGREES TO ASSUME ALL RESPONSIBILITY FOR CONTACTING, INVESTIGATING AND DRIVING OR COMMUTING WITH THE PERSONS WHOSE NAMES ARE FURNISHED BY WKLS, WAGA, GEORGIA MOTOR CLUB, OR COMPU-SERV, AND THE UNDERSIGNED AUTHORIZES WKLS AND GEORGIA MOTOR CLUB TO RELEASE THE NAME AND THE TELEPHONE NUMBER OF THE UNDERSIGNED TO ANY POTENTIAL DRIVER OR RIDER SELECTED BY COMPU-SERV, INC.

_____
SIGNATURE

If you drive to work alone-CUT IT OUT

Answer all the questions above. Then mail to: Klass Karpool, Georgia Motor Club, 1100 Spring St., N. W. Atlanta, Ga. 30309.

Questionnaires must be accompanied by a dime or 10c stamps for return postage and handling or cannot be processed.

You will receive your Klass Karpool commuter printout by return mail.

TV5 WAGA·ATLANTA

AAA The Most Trusted Name in Travel
Georgia Motor Club

COMPU-SERV NETWORK

wkls that's...klass

K L A S S K A R - P O O L R E P O R T

****

BARTEE LAMAR
COMPU-SERV NETWORK INC.
975 WEST PEACHTREE ST.
ATLANTA, GA. 30309

THE FOLLOWING PEOPLE HAVE BEEN MATCHED BY THE COMPU-SERV COMPUTERS AS POSSIBLE RIDERS IN YOUR KAR-POOL.

NAME	PHONE	PREFERENCE
ALICE BUTHOD	892-3733	RIDE ONLY
BETTY HINES	521-0845	ALTERNATE RIDE/DRIVE
DON WATERMAN	892-9557	RIDE ONLY
JIM WALLS	892-7171	DRIVE ONLY
LARRY FARMER	892-3734	RIDE ONLY
RON BAXLEY	892-9557	ALTERNATE RIDE/DRIVE

WE URGE YOU TO CONTACT THE ABOVE PEOPLE SO THAT YOU CAN FORM YOUR KAR-POOL AS SOON AS POSSIBLE.

THE KLASS KAR-POOL IS PRESENTED AS A PUBLIC SERVICE BY:

W K L S — COMPU-SERV NETWORK

W A G A — GEORGIA MOTOR CLUB

THE ATLANTA CHAMBER OF COMMERCE
THE ATLANTA JAYCEES

division and they will deliver materials to the Georgia Motor Club.

B. Have employees mail them directly to the Georgia Motor Club.

C. Employees return them to a central location within the company, e.g. Personnel Department, so that they might be delivered to Georgia Motor Club in one package.

Note: Remind employees to send in a dime and most importantly to sign application. The disclaimer must be signed before processing.

Other Ways Employers Can Help Commuters

In addition to car pools there are other ways employers can make commuting easier for their employees.

1. Van pool – This would be making use of vehicles owned by the company or vehicles which had been purchased for the purpose of providing door-to-door service to several employees.
2. Provide parking spaces for bus riders if property lies on one of the MARTA bus lines. Many companies have extra space at branches or main office locations near residential neighborhoods that bus riders could use, especially in bad weather.
3. Make MARTA schedules easily accessible to all employees and customers.
4. Provide shelters on property owned by the company and located along the MARTA bus line.
5. Vary working hours so that employees may ride buses during less crowded times than the normal rush hours.

Who To Call

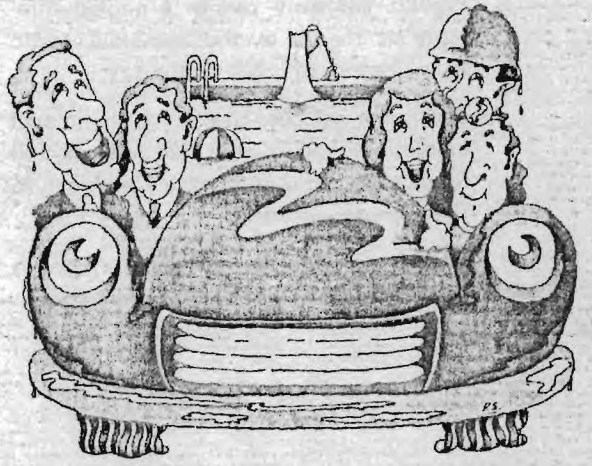
The following is a list of agencies and firms to contact for printed material and information to be used in setting up a car pool program.

Information Exchange Board	Georgia Department of Transportation
Applications and Maps	WAGA–TV WKLS
Buttons, Posters, Bumper Stickers and Brochures	Atlanta Chamber of Commerce
Data Processing	Compu-Serv Network
Presentation to Employees	Atlanta Chamber of Commerce Atlanta Jaycees

A Publication of the
Atlanta Chamber of Commerce
January, 1974

Car Pools

How the employer can help.



How Employers Can Help

It is vitally important in setting up a car pool program that the employee feel his effort is on a *voluntary* basis and that he is *not* under pressure from the management. The employer, however, can be of assistance to his employees by making the necessary materials available and by encouraging participation through an incentive program.

The following are a few suggestions:

1. Make materials available and have background information on hand.
2. Provide parking lot discounts to car pools.
3. Provide preferred parking spaces to automobiles with more than one occupant, e.g. spaces closest to shelter.
4. Allow car pools to take preference in obtaining assigned spaces in parking lot.
5. Provide company cars or a pooled company car for use by those employees who have to make calls during the day.
6. Sponsor a car pool day at which time all employees who share a ride to work will be given recognition, e.g. a free lunch in the company cafeteria.
7. Provide a shuttle van for visits to branches.

How to Establish a Car Pool Program

A great deal of time and research has already been spent by two separate groups in Atlanta to organize a car pool program that all Atlantans can take advantage of:

Georgia Department of Transportation

Recognizing the importance of energy conservation and a need to ease traffic congestion, this state agency is interested in encouraging car pool programs in communities throughout the state. They are prepared to assist in setting up a car pool information exchange board at employment centers. This board includes a map and materials for commuters use in finding other interested persons.

Klass Karpool Program

This computer program is a community effort on behalf of Atlanta by WKLS, WAGA, Georgia Motor Club, and Compu-Serv Network. Commuters who are interested in joining car pools can fill out applications and, through a computer print out, be matched with other commuters who live nearby and work similar hours in the same metro area. There is no cost other than a 10¢ mailing fee.

It will be up to each employer to decide how he will set up a car pool program and which of the existing programs will best suit the needs of his company. It is, of course, possible to take advantage of both.

First Step: Ordering Materials

A. Order enough applications and maps for each employee. If you have in-house printing you may want to order a velox and print your own. (See application and map)

B. Order the promotional materials needed for implementing program, e.g. "Get In The Swim" brochures, bumper stickers, posters, buttons. (See order form)

Second Step: Promotion

A. Decide on a specific day or week to launch the program.

B. Set up posters in employee lounges, cafeteria, or lobby.

C. Feature a story on car pools in in-house newsletters or circulate through inter-office memoranda. (See News Release)

D. Call for a presentation to be made to employees. (Atlanta Chamber of Commerce staff or Atlanta Jaycees)

E. Schedule announcements at meetings of Department Heads or Managers.

Third Step: Distribution

Depending on the size and structure of the company there are several alternatives in distribution of the materials:

A. Designate an employee in each division of the company to be in charge of circulating the materials within that division.

B. If possible, reprint application and map and distribute through in-house newsletter.

C. Distribute application and map to personnel through inter-office memoranda or pay-check envelopes.

Fourth Step: Collection

Again, depending on the size and structure of the company there are several ways that applications can be collected for Data Processing.

A. Return to employee in charge within the

MINUTES
CAR POOL TASK FORCE MEETING

The Car Pool Task Force met at the Atlanta Chamber of Commerce on Thursday, May 9, at 2:00 pm.

Energy

Harry Howard, Chairman of the Chamber's Energy Task Force, gave a brief report on the energy situation. He stated that there is still a serious need for conserving gasoline and that there would be for some time. The nation is now striving for self-sufficiency and fuel conservation must continue.

The group added that although conserving gasoline was still very important, this would not necessarily be the prime motivation for continuing the car pool project.

Company Calls

Steve Dixon, Atlanta Jaycees, reported that after calling on 130 companies 45 have agreed to form car pool programs. He added that difficulty arises in having the top executive follow through by assigning a company coordinator who will successfully carry out the car pool project.

Applications

Jim Walls, Georgia Motor Club, reported that the total number of applications received was 1,350. Only two to three hundred of those had been received since January.

The group acknowledged that this number was not encouraging.

Computer

The number of applications received were sufficient for only one computer run. Out of 900 processed in February, one-third of these were matched. From this small amount it was agreed that the number of matches was encouraging. It was also agreed that the program should be modified so that those who were not matched could somehow be notified.

Omaha Program

Bette Hines, Atlanta Chamber, reported that the Omaha, Nebraska car pool program set up very similar to our own by the Omaha Jaycees, had been highly successful. The Omaha Jaycees working with the local Transit Authority applied for federal funds and a $150,000 grant has just been awarded. The Nebraska State Department of Roads is establishing a full time professional staff to carry out this project.

Georgia Tech

Dr. Steve Dickerson, Georgia Tech, reported that he had assisted two companies in setting up computer car pool programs - Western Electric and Texaco. The computer facility at Georgia Tech was used for processing.

Western Electric was the first company assisted by Georgia Tech and with 400 employees there was 15 - 20% participation. The Texaco project followed with 70% employee participation.

Dr. Dickerson is now under contract with the Georgia Department of Transportation to assist in this area.

Georgia Department of Transportation

Jim Fielding and Mary Moore reported that a project was under way to acquire "park and ride" facilities for car pool participants. They added that the response of the shopping center owners was favorable and that a local agency was needed to further implement.

Reorganization

The group agreed that two major problems exist in the present car pool effort and these must be resolved before continuing the project. First, a choice of two programs (Klass Karpool and Georgia Department of Transportation) had only served to dilute the overall effort. Secondly, the Klass Karpool program has not received complete community support because of the commercialism. All commercial identity should be removed from brochures, applications, and other promotional literature.

It was also agreed that a closer look at the Omaha program would be beneficial, particularly with regard to their company presentation. It was suggested that inviting the top executives to a meeting where the Mayor or other official makes a formal plea might be successful in this regard.

The need for a permanently staffed office to carry out the project was discussed. It was decided that the Chamber was the proper agency to seek funding, either private or federal, for such an office.

Finally all participants agreed that with reorganization the project should be continued and they were committed to helping in any way possible.

CAR POOL TASK FORCE

Mr. Steve Dixon, Chairman — 255-6122
(Atlanta Jaycees)
Clover Realty
257 Mt. Vernon Highway
Atlanta, Georgia 30308

Mr. Grady McWhorter — 522-8051
Atlanta Gas Light Company
Service Department
P. O. Box 4564
Atlanta, Georgia 30302

Mr. David Odum — 522-6121
Georgia Power Company
1790 Montreal Circle
Tucker, Georgia 30084

Mr. James G. Walls, Jr. — 875-7171
Georgia Motor Club
1100 Spring Street, N.W.
Atlanta, Georgia 30309

Mr. Don Waterman — 892-9557
WKLS Radio-FM
1655 Peachtree Road, N.E.
Atlanta, Georgia 30309

Mr. Dick Goss — 875-5551
WAGA-TV
1551 Briarcliff Road, N.E.
Atlanta, Georgia 30306

Mr. Larry Reed — 892-3733
Compu-Serv Network
975 W. Peachtree, N.E.
Atlanta, Georgia 30309

Mr. Jim Fieldings — 656-5351
Georgia Department of Transportation
#2 Capitol Square
Atlanta, Georgia 30334

Ms. Bette Hines — 521-0845
Atlanta Chamber of Commerce
1300 Commerce Building
Atlanta, Georgia 30303

Dr. Steve Dickerson — 894-3255
Georgia Institute of Technology
225 North Avenue
Atlanta, Georgia

Standard Report Form

POOLING PROGRAMS IN THE STATE OF GEORGIA

Date of Report 6/25/74

Beginning Date of Program Approx. Dec. 15, 1973

Program Title Texaco Operation "Pool It"

Principal Contact Jack E. Fugua, Public Affairs Coordinator

Texaco Inc. 59 Executive Park So., Atlanta Georgia 30329

Population Subset Involved Texaco employees at location given above

No. of People in Subset 556

No. of People Responding 556

No. of People Responding Favorably 395 (includes 46 already in carpools)

No. of People Matched Up approximately 330

No. of People who Began Pooling 80 (from data furnished by Texaco)

Average No. of Cars Removed from Road/Working day 54 (67% of poolers)

Description of Operation On 1/7/74 letter and form attached were distributed to all texaco employees (556). Texaco keypunched the data for 349 people not now in carpools and furnished data to Steve Dickerson at Georgia Tech who prepared computer responses for each by approximately 2/1/74. Reserved parking spots were set aside for those people who applied with 3 or more in pool. On this basis 126 are now pooling.

Reference Material See letter data 1/7/74 to all employees, data form, data summary, and reserve parking spot sticker. Programs available at Ga. Tech

Form S-4125 1-73

TEXACO

☐ INSTRUCTIONS—CANCELS LETTER(S) OF _____ SIGNED BY _____

☐ PERMANENT ☐ ROUTINE ☐ TEMPORARY

Atlanta, Georgia 30301, January 7, 1974

OPERATION "POOL IT"

ALL EMPLOYES

Buildings 52 and 59

Through Operation "POOL IT," it is possible for each of us to do our share in promoting Reduced Gasoline Consumption, Reduced Traffic Congestion and Cleaner Air. This is especially true during the present Energy Crisis. Our Country needs our help, and you will also benefit by reducing your travel cost and more than likely have a more pleasant trip by sharing a ride with fellow employes.

Attached are an information sheet, a data form and a grid map to let us know where you live and other valuable information to determine the feasibility of working up car pool arrangements. This form, properly filled out by you, will let us know if you are or are not interested in becoming a part of a car pool, but we need your immediate response.

It's time we realized that each individual's action is important to the conservation of gasoline. You can do something - FORM A CAR POOL TODAY. Please return the requested information to your Supervisor today.

J. E. Poppa
PUBLIC AFFAIRS COORDINATOR

JEF-DLB

"Be a MONEY MAKER in 1973"

TEXACO INC. EMPLOYES' DATA FORM

FOR OPERATION "POOL IT"

INSTRUCTIONS: PLEASE COMPLETE ALL QUESTIONS AND RETURN ONLY THIS DATA FORM TO YOUR SUPERVISOR.

NAME [ ] (FIRST AND LAST)

ADDRESS [ ] (NUMBER AND STREET NAME)

[ ] (CITY) [ ] (STATE) [ ] (ZIP)

YES [ ] NO [ ] DO YOU WISH TO PARTICIPATE IN A CAR POOL PROGRAM - PLEASE MARK APPROPRIATE BOX.

IF YOU HAVE MARKED THE ABOVE NO BOX, PLEASE GIVE REASON ON THE BACK OF THIS SHEET.

IF YOU HAVE MARKED THE ABOVE YES BOX, THEN PLEASE COMPLETE THE FOLLOWING.

X [ ] Y [ ] ← PLEASE LOCATE YOUR RESIDENCE CAREFULLY ON THE ATTACHED MAP AND PLACE THE GRID NUMBER HERE

YES [ ] NO [ ] ← I WANT TO DRIVE MY CAR

YES [ ] NO [ ] ← I WANT TO BE A PASSENGER

[ ] ← HOME TELEPHONE NUMBER

[ ] ← DEPARTMENT NUMBER (INDICATE YOUR DEPARTMENT AS SHOWN BELOW)

0001 - EXECUTIVE
0002 - AUDITING
0003 - COMPTROLLER'S
0004 - FUEL OIL SALES
0005 - LEGAL
0006 - MEDICAL
0007 - OFFICE SERVICES
0008 - RESEARCH & TECHNICAL
0009 - SALES
0010 - SECURITY

[ ] ← OFFICE EXTENSION

OPERATION "POOL IT"

	YES	NO	ALREADY IN CAR POOL	ABSENT
ACCOUNTING	256	77	11	0
AUDITING	2	3	2	0
COMPUTER SERVICES	28	23	14	0
EXECUTIVE	1	6	0	0
FUEL OIL SALES	3	0	1	0
LEGAL	1	4	0	0
OFFICE SERVICES	8	9	8	0
RESEARCH & TECHNICAL	2	1	0	0
SALES	46	28	7	0
SECURITY	0	2	0	0
TAX	2	8	3	0
	349	161	46	

161
510
46
556

Standard Report Form

POOLING PROGRAMS IN THE STATE OF GEORGIA

Date of Report 2/25/74

Beginning Date of Program Oct. 23, 1973

Program Title Western Electric (Norcross) Operation Pool-It

Principal Contact M.A. Jedrzejak (Mel), Resident Transportation Supervisor, WE, 2000 N.E. Expressway, Norcross 30071

Population Subset Involved All employees at above location

No. of People in Subset approx. 2200

No. of People Responding 404

No. of People Responding Favorably 404

No. of People Matched Up approx. 350

No. of People who Began Pooling 70 est. (survey to be done at some future date by WE) (20% of matched)

Average No. of Cars Removed from Road/Working day 47 est. (67% of poolers)

Description of Operation On approx. Dec. 1, 1973 each employee recieved from his supervisor a cover letter, data form, pool-it bumper sticker, pool it pamphlet and grid map. The data forms were returned to S. Dickerson at Georgia Tech and on Dec. 19, 1973 the responses to the initial batch were returned. Subsequently approximately 100 more people have been processed (total 404). No incentives per say are given to employees to pool.

Reference Material See attached write-up entitled "POOLING" which was based largely on WE experience. Programs available at Georgia Tech.

pooling

The Transportation Engineering Committee at Georgia Tech has been actively promoting the implementation of programs which will encourage the use of carpools. Carpools (and van pools & bus pools) appear to offer much promise as a quick way to greatly decrease gasoline consumption for commuting purposes as well as reduce traffic conjestion, noise and air pollution.

The emphasis in our program is to assist organizations to set up computer matching of persons with similar commuting needs based on location of residence and employment and times of trips. Our assistance consists of advice on how to conduct the project, the necessary computer services, and various maps, forms, bumper stickers, etc. In the case of maps a unified statewide grid system has been set up which includes every square mile of Georgia and is based on the 1973 Official Highway Map of Georgia. There will be a nominal charge for all computer services and materials designed to cover costs, except that consulting services by telephone will be free. The organization may choose to print their own forms, etc. A price list is attached as Exhibit A.

It is important that large groups of people be involved in any area so that it becomes possible to make good matches between individuals. For this reason it is suggested that Georgia Tech process the data so that carpools are not restricted to people who belong to the same organization. However, we will respect requests that matching be limited to people in the same organization.

While organizations such as churches, PTA's, TV stations, chambers of commerce and Lion's clubs may wish to conduct carpool projects, this particular packet is prepared as if an employer were the organization. Very similar proceedures and materials would be used by other organizations. The general sequence of operations for an employer is to

1. Publicize the advantages of pooling and the fact that your company will soon have an organized effort. This is done with in-plant posters and letters to supervisors (See Exhibit B).

2. Distribute a "pooling packet" to employees which must contain (1) a response form and (2) a map. It probably should contain (3) a cover letter, (4) a bumper sticker and (5) a pamphlet describing the advantages of pooling. Examples of these items are attached as Exhibits C through G respectively.

3. Have the data processed and have the resulting computer listings distributed to the employees.

4. Arrange for periodic follow-up which would allow for employees who are new or decide to participate after rationing starts to complete the process. Annual repeating of the entire process for all employees is probably desirable.

Several refinements are available. First, incentives to pooling can be offered such as preferred parking. Second the form that the computer output takes can be modified easily. That is, special titles and messages can be included. Furthermore, printouts can be organized by department or other characteristics so that distribution can be facilitated.

EXHIBIT A

Cost of Materials and Computer Services

Bumper Sticker*	1¢ each
Pooling Pamphlet*	4¢ each
Area Maps (8-1/2 x 11)	2¢ each
Card Punching of data from response forms +	15¢ each
Black and white poster +	5¢ each
Output listings for participants	5¢ each

Address requests to Dr. Steve Dickerson, School of Mechanical Engineering, Georgia Tech, Atlanta, Ga. 30332 or call 404-894-3255.

+ these items might be more efficiently prepared by the company.

* available from Highway Users Federation
1776 Massachusetts Avenue, NW
Washington, D.C. 20036 (202) 833-5800

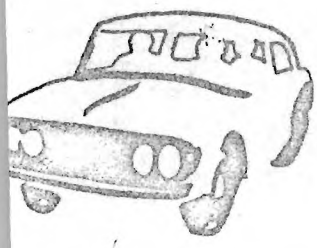
12/12/73

EXHIBIT B

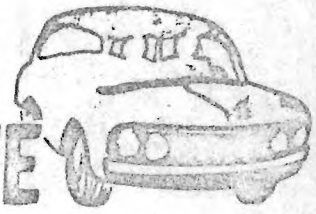
Publicity Materials, Examples

OPERATION: "POOL IT"

- CLEANER AIR
- REDUCE GASOLINE CONSUMPTION
- REDUCE TRAFFIC CONGESTION



DO YOUR PART and SHARE-A-RIDE with A FELLOW EMPLOYEE



POSTER

TO ALL DEPARTMENT CHIEFS

Re: Car Pool Program

In the next day or so, you will be receiving enough car pool information kits for each of your employees.

In light of the present Energy Crisis, we are requesting your maximum cooperation in assuring that each of your employees receive a car pool starter kit. In addition to the kit, you will also receive a poster concerning the car pool program which we would like you to display in a prominent place in your area.

Your cooperation in this matter is greatly appreciated. If you should need any further information or additional kits, please contact M. A. Jedrzejak on extention 2470.

W. S. STEVENS - 4300

Copy to:
General Manager
Director
Managers
Assistant Managers

SAMPLE LETTER TO SUPERVISORS

Courtesy Western Electric
Cable Division

TO: All Employees

FROM: Employees' Activity Club

RE: Operation "Pool It"

Through Operation "Pool It", it is possible for each of us to do his or her share in promoting CLEANER AIR, REDUCED GASOLINE CONSUMPTION and REDUCED TRAFFIC CONGESTION. You will also reduce your travel costs and likely have a more pleasant trip by sharing a ride with fellow employees.

Enclosed is a small brochure, bumper sticker, map, and a data form to let us know where you live and what times you travel to and from work. By returning this form completed, the Employees' Activity Club will know that you are interested in car pooling and will be able to make a computerized match with other employees who would also like to pool. You will be furnished with a listing of the other employees who live near you and travel at the same time. With this information, we hope that each of you will contact other employees and form a car pool.

It's time we realize that each individual's action is important to the control of pollution and the conservation of gasoline. You can do something - FORM A CAR POOL TODAY.

Employees' Activity Club

Cover Letter to Employees, Example.

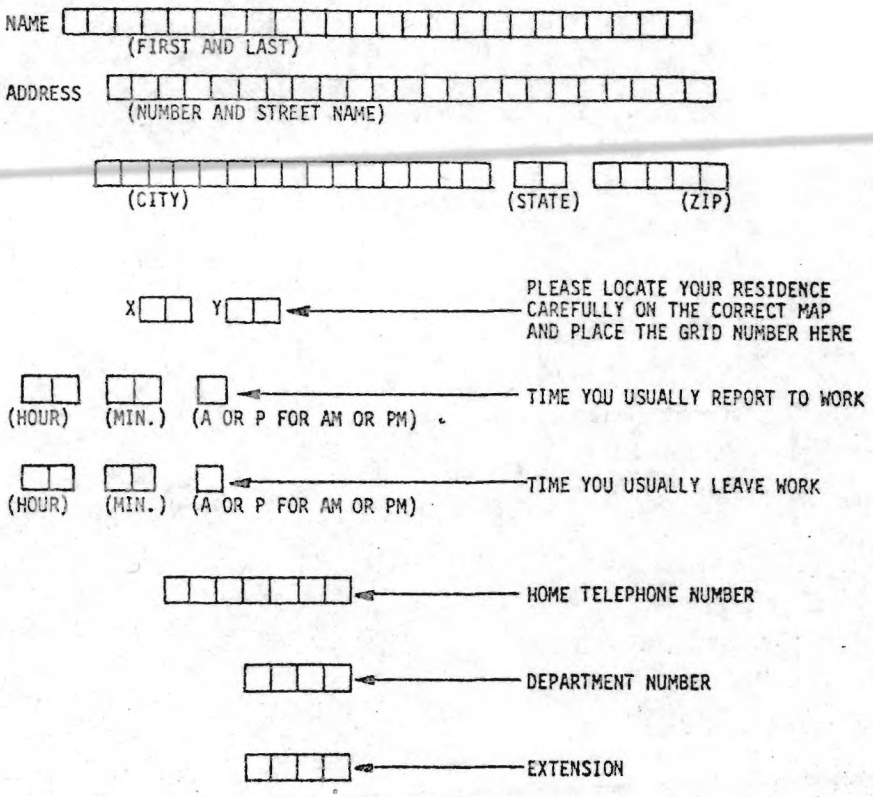
EXHIBIT E

EMPLOYEES' ACTIVITY CLUB DATA FORM

FOR

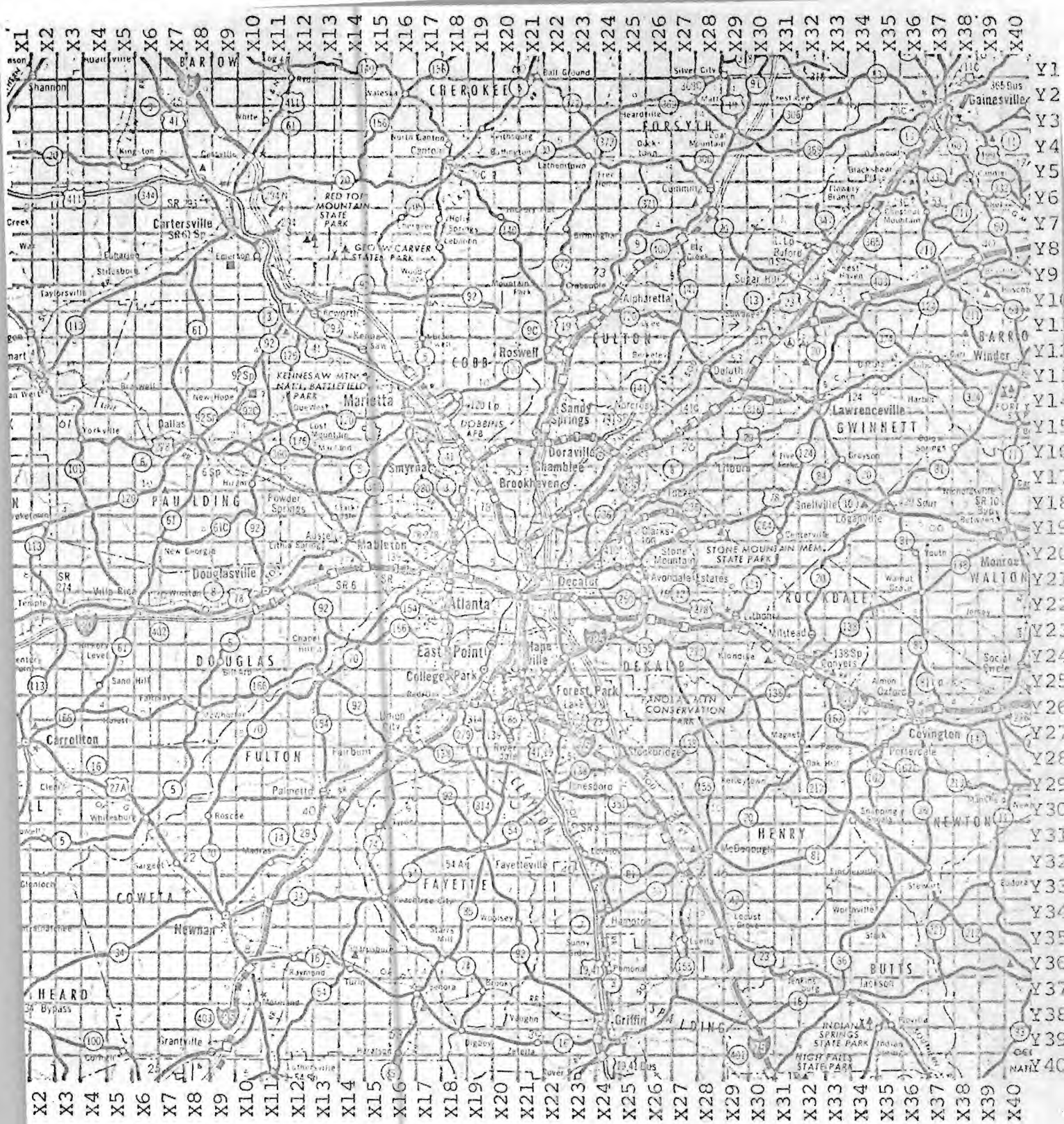
OPERATION "POOL IT"

INSTRUCTIONS: PLEASE COMPLETE ALL QUESTIONS AND RETURN ONLY THIS DATA FORM TO DEPARTMENT 1620 BY DECEMBER 17, 1973
PLEASE CALL 2470 IF YOU HAVE ANY QUESTIONS.



Response Form, Example

EXHIBIT C



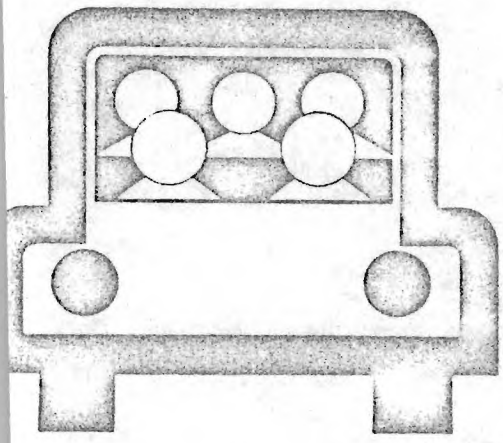
Please determine your home grid and print the X and Y grid numbers in the appropriate blocks on the data form. For example, if you lived in Lawrenceville your grid would be X32, Y14.

For your information the grids are two miles square.

If you live beyond the limits of the map, select the grid at which you typically enter this map when commuting to work.

Map for "Pooling Packet",Example

EXHIBIT D

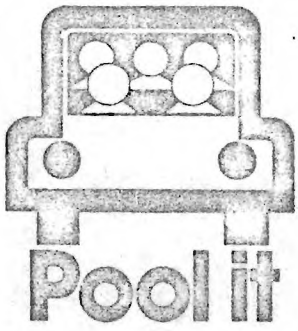


Pool it

HIGHWAY USERS FEDERATION 1776 MASSACHUSETTS AVE., N.W., WASHINGTON, D.C. 2003

Bumper Sticker for "Pooling Packet"

EXHIBIT F



CARPOOLS

a way to cut commuting costs and ease traffic congestion

Carpools can help break the nation's commuter traffic jams. And they can do it *now*—cheaper than any other form of transportation.

Transportation experts concerned with the heavy volumes of traffic during commuter hours have recognized the advantages of carpools for a long time. They also know that a major factor lacking in getting people to try this transportation "mode" has been incentive . . . that is, a good reason to form a carpool.

New research may provide that "good reason," and it leads directly through commuter pocketbooks.

The research boils down to this: *carpools offer far and away the most economical solution to rush hour congestion problems.*

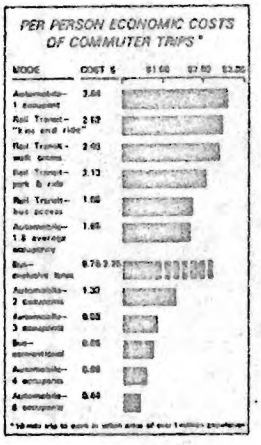
Here is what the researchers have learned—

- The most expensive of all transportation modes available to commuters is the private automobile with only the driver in the car. The economic cost of a typical 10-mile work trip downtown in urban areas of over one million is $2.64.
- By comparison a carpool of four persons provides a much cheaper way to commute. The economic cost of a 10-mile trip to work is only 66 cents per person.
- If commuters don't mind a little crowding, they can form a six-man carpool and cut the cost even more. To be exact, to 44 cents.
- Conventional buses—that is, non-express types—can operate for a total economic cost of 86 cents per person for a 10-mile work trip, only 20 cents more than a four-person carpool.
- The costs of rail transit (subways, surface rail, elevateds) range from $1.66 to $2.52 per person for the 10-mile trip, depending on the way the rider gets to and from the transit station (walking, bike, bus, private car, etc.).

That in a nutshell is the range of economic costs of the most popular means of commuting today. It's plain to see that the most expensive way to get to work in large cities is for one person to drive himself back and forth to work while the least expensive way is for four or more people to share the ride.

Aside from the money savings aspect carpools have a great potential to reduce traffic congestion. For example, if automobile occupancy could be increased from the present average of 1.6 persons per vehicle to 2.0 per vehicle, 20 percent of the motor vehicles would be removed from rush hour traffic.

To encourage carpooling some government



Pamphlet for "Pooling Packet"

EXHIBIT G

Courtesy Highway Users Federation

Standard Report Form

POOLING PROGRAMS IN THE STATE OF GEORGIA

Date of Report 6/25/74

Beginning Date of Program Nov. 25, 1973

Program Title Commuter Club

Principal Contact Jim Fielding, Office of Planning, Dept. of Transportation
#2 Capital Square, Atlanta 30334

Population Subset Involved Downtown employees plus two hospitals in Atlanta

No. of People in Subset approx. 50000

No. of People Responding approx 1000

No. of People Responding Favorably approx. 1000

No. of People Matched Up N.A.

No. of People who Began Pooling 50 est. (5% of respondees)

Average No. of Cars Removed from Road/Working day 33 est. (67% of poolers)

Description of Operation Manual "Match Boards" were placed at 13 locations. These boards were stocked with 3x5 data cards and bumper stickers. The data cards were of two types "rider" and "driver". Cards were placed in a home zone location file after consulting the home zone location map. Persons interested in pooling inspected the cards for zones in the neighborhood of his residence.

Reference Material See "The Commuter Club Carpool Program" and "Commuter Club Summary"

THE COMMUTER CLUB

CARPOOL PROGRAM

The purpose of this proposal is to define a means for Atlanta area commuters to take part in a simple, inexpensive carpool program. This program will be discussed in terms of the following attributes of carpool programs:

(1) Publicity and promotion
(2) Incentives
(3) Mechanics

The goal of this carpool program is to reduce peak period traffic congestion on Atlanta's streets and highways by increasing the average number of occupants per vehicle during peak commuting periods. Less quantifiable goals of the carpool program are the reduction of noise and air pollution caused by automobiles along with a reduction in gasoline usage for the area. This program will in no way affect the efforts of the Metropolitan Atlanta Rapid Transit Authority to provide better public transportation, indeed regular transit riders will be among the prime benefactors of a carpool program; bus travel times will be reduced.

(1) Publicity and promotion

A heavy promotional program is critical to the success of a carpool program. In advance of program implementation, a heavy promotional campaign via newspapers, radio, television, in-house organs, and employee newsletters would be launched. Additionally, appearances before employee groups by carpool organizers and visible support from high level management are requisites of successful carpool programs.

Publicity should center on the goals of the program and the benefits to be derived; as viewed by the carpool user e. g. quicker, cheaper journey-to-work, close-in parking, lower air pollution etc. Publicity and promotion should continue throughout the life of the program, using the same media and making a special effort to attract new employees to the program.

(2) Incentives

There are some indications that cost may not be the prime consideration in determining mode choice for the journey-to-work trip, convenience and travel time may be more important to the commuter. Accordingly, incentives to carpool should include preferred parking, access to exclusive traffic lanes, and ability to avoid queues for ingress and egress at parking lots. In short, acts aimed at reducing the travel time and inconvenience associated with the work trip.

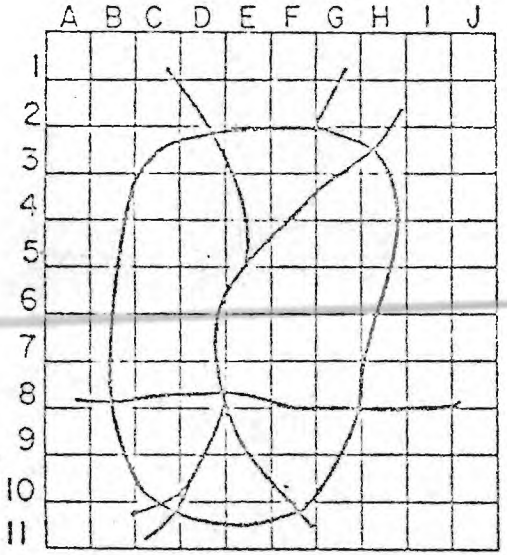
(3) Mechanics

At selected sites, a map would be posted in a display. Cards at each site, color-coded to reflect those wanting a ride and those willing to drive, would be available. The potential carpooler would complete the appropriate form and put it in the pigeonhole that corresponds to his home address zone. Since each site is the common destination zone, respondents need only peruse the cards in their zone to determine the potential for carpooling. Writing materials and facilities for copying names of potential riders (and drivers) would be available at the site. Also bumper stickers identifying carpool vehicles, for publicity purposes would be available.

JOIN THE COMMUTER CLUB

"CARPOOLING - SAVES ENERGY, REDUCES POLLUTION"

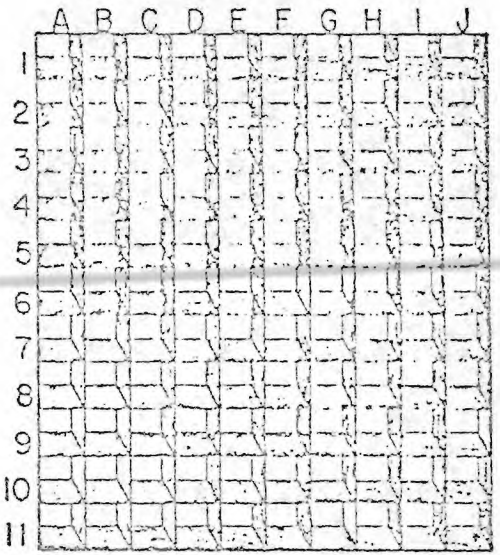
HOME ZONE LOCATION MAP



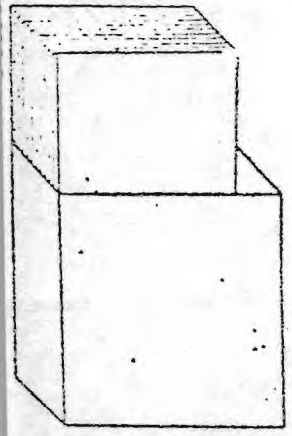
DRIVER INFORMATION CARDS

RIDER INFORMATION CARDS

HOME ZONE LOCATION FILE



NOTE PAPER



RESPONSIBILITY

IT SHOULD BE ____

DIRECTIONS

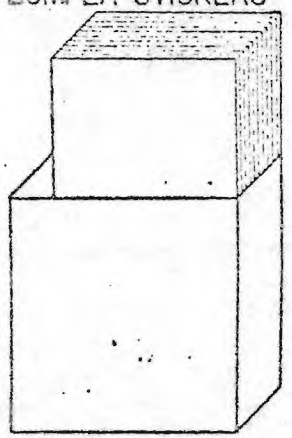
DRIVERS

1. _____
2. _____
3. _____

RIDERS

1. _____
2. _____
3. _____

BUMPER STICKERS



DIRECTIONS

1. Go to the map on the left side of the board and identify your Home Zone Location.

2. Complete the Rider or Driver Information Card. Answer all questions and initial the card.

3. Place the card in the Home Zone Location File slot that corresponds to your Home Zone.

4. If there is a possible Carpool Rider and or Driver in your Home Zone that you wish to contact copy the necessary information on the note paper provided and return the cards including your own to the appropriate slot.

RESPONSIBILITY

IT SHOULD BE UNDERSTOOD BY ALL PERSONS USING THE CARPOOL PROJECT SERVICE THAT ITS SOLE FUNCTION IS TO MATCH, ON THE BASIS OF INFORMATION PROVIDED (BUT WITHOUT INVESTIGATION OF DRIVING RECORDS AND OTHER RELEVANT INFORMATION), PROSPECTIVE DRIVERS AND PROSPECTIVE RIDERS. THE PERSON USING THIS SERVICE AGREES THAT (SPONSOR ORGANIZATION) AND THE GEORGIA DEPARTMENT OF TRANSPORTATION WILL NOT BE LIABLE FOR ANY ACTION TAKEN OR OMITTED IN GOOD FAITH IN CONNECTION WITH THE CARPOOL PROJECT SERVICE. ALL PERSONS USING THE CARPOOL PROJECT SERVICE ASSUME ALL RESPONSIBILITY FOR CONTACTING, INVESTIGATING AND DRIVING OR COMMUTING WITH THE PERSONS WHOSE NAMES ARE FOUND ON THE HOME ZONE LOCATION FILE.

Commuter Club Summary

A Small Sample of People Using the Commuter Club Board at the Equitable Building

Using a random number table people who had placed cards in the Equitable Building Commuter Club Board were put in a random order and telephoned in that order. If a person could not be located on the first call the person was not interviewed but rather the next person in the random list was called. Fifty-two calls were needed to contact 25 people. Of that 25

9 said they had contacted or were contacted by someone also who had used the board.

7 said they were now in pools. However only

2 of these had utilized the board for information and only

1 had increased the size of the pool from use of that information.

8 still check the board for leads.

This very small sample indicates that only a small percent of the people* who place cards in the board are able to use the board to form a carpool or increase the size of an existing pool. However, this sample may understate the effectiveness of the boards because

a. of statistical reasons (too small a sample)

b. the promotional value of the board is not measured

c. people who have formed a pool may have withdrawn their cards.

Survey of Utilization of the Boards

Each board in the central area of Atlanta was inspected on or about June 1. A summary of the utilization is given in the table which follows. Approximately 1000 people placed cards in the boards located in central Atlanta. This is roughly 2% of the employment in the area. On the basis of 5% being diverted to carpools of an average size of 3 people per carpool this would result in approximately 33 fewer cars commuting to and from downtown. The number may be

considerably different than this however. Most likely the number diverted is higher for reasons cited earlier.

Comments

Some observations of general interest noted by the students gathering the data are that between 20 and 30% of the cards are out of position on the board. (This ran close to 50% at Georgia State.) About 12% of the phone calls resulted in the message that a wrong number was called. About 10% of the persons called no longer worked at the locations given on the card.

Dispite the apparent small number of people drawn into carpools by the boards the benefit/cost ratio may be very large. The MARTA benefit/cost study** puts the benefit of diverting a single person-trip from the private auto to mass transit at $5.25 on the average. Using this figure for 250 days per year and 33 people the resulting benefit is $86,625.

---

*4% or one in twenty - five

**From Benefits to the Atlanta Metropolitan Area From The Proposed Regional Transportation Program, Development Research Associates, December 1971. The figure $5.25 was calculated by the author from data given in the report. This is in 1971 dollars.

Location	Drivers	Riders	Alternate	Total	Materials
Southern Bell (Hurt Building)	5	30	71	106	ok
Fulton Federal (31 Edgewood)	6	20	18	26	ok
Cushman Corp (100 Colony Sq.)	8	54	35	62	no stickers
Southern Bell (51 Ivy St.)	22	36	44	58	no materials
Georgia State (33 Gilmer St.)	80	109	123	189	no materials
Georgia Power (270 Peachtree St.)	22	24	34	46	ok
State Capital	117	65	30	182	no stickers
City Hall	22	23	27	45	no stickers
Life of Georgia				8	
Equitable Building	55	69	12	112	
				834	

Standard Report Form

POOLING PROGRAMS IN THE STATE OF GEORGIA

Date of Report 6/26/74

Beginning Date of Program Feb 15, 1974

Program Title Georgia Tech Faculty and Staff

Principal Contact Steve Dickerson, Associate Professor

School of Mech. Engr. Georgia Tech, Atlanta 30332

Population Subset Involved all employees at above location

No. of People in Subset approx 2000

No. of People Responding N.A.

No. of People Responding Favorably N.A.

No. of People Matched Up approx 2000

No. of People who Began Pooling 150 est. (from data)

Average No. of Cars Removed from Road/Working day 80 (53% of poolers)

Description of Operation Every employee was mailed a list of all other employees and staff that lived in his zip code. The list also was broken down by telephone numbers prefix. A response form to evaluate effectiveness was also mailed with list as was a cover letter.

Reference Material Cover letter of Feb 15, 1974. Response form.

Analysis of response by G. L. Petherick of April 26, 1974.

GEORGIA INSTITUTE OF TECHNOLOGY
ATLANTA, GEORGIA 30332

OFFICE OF THE PRESIDENT

February 15, 1974

Dear Colleague:

You are most likely aware of the personal benefits as well as the energy savings that could be realized through ride sharing to and from the campus. A more extensive use of car pooling by the commuting Tech community would not only save money and energy but would also help directly to relieve a congested parking and traffic situation on campus. Toward these ends, there is enclosed a listing of other faculty and staff members who live in your area. Please note that the grouping of persons is by zip codes, and to some extent by telephone prefix. It is hoped that you will be able to use this information to form convenient pooling arrangements for your daily work travel.

You may find it more convenient to ride with people in adjacent areas and who are not on the listing. If you wish to check this possibility, a complete listing of all areas under the title "Pooling" is available at the library.

As you know, the normal work hours for the campus community are 8 a.m. to 5 p.m., except for: Physical Plant Department employees whose hours are normally 7:55 a.m. to 4:25 p.m.; and some food service personnel whose workday begins as early as 6 a.m.

An evaluation of this program is essential if it is to be altered for improvement; therefore, your input is essential. Please return the attached response form to the Office of the Director of Campus Safety, and all inquiries regarding the program should also be directed to that office.

Please understand that the Institute assumes no liability for your car pool utilization, so I urge that you check with your automobile insurance agent to ascertain whether or not your coverage may be altered by car pool utilization.

Sincerely,

J. M. Pettit
President

JMP/mb

Attachments

GEORGIA INSTITUTE OF TECHNOLOGY
CAR POOL RESPONSE

	YES	NO
Are you now a member of a car pool?	☐	☐
If so, how many members? _____		
Is the information supplied herein useful in:		
-increasing the size of your present car pool?	☐	☐
-organizing a new car pool?	☐	☐

If you are not now involved in a car pool, what factors do you consider essential for participation (for example: special campus parking spaces; reduced motor vehicle registration fees; more detailed information on fellow employees who might car pool with you)?

_____

_____

WE NEED THIS INFORMATION - NO POSTAGE NECESSARY - PLEASE RETURN

Postage Will Be Paid By Addressee

No Postage Stamp Necessary If Mailed In The United States

BUSINESS REPLY MAIL
First Class Permit No. 7348 Atlanta, Ga.

Director of Campus Safety
Georgia Institute of Technology
225 North Avenue, N.W.
Atlanta, Georgia 30332

CAR POOL RESPONSE ANALYSIS

QUESTION	NO. AND PERCENTAGE OF RESPONSE			
	YES	%	NO	%
1) Are you now a member of a car pool?	80	30.42	183	69.58
If so, how many members?		2.55 people/car		
2) Is the information supplied herein useful in:				
(a) increasing the size of your present car pool?	37	13.46	83	31.92
(b) organizing a new car pool?	88	33.08	99	37.69

Total number mailed = 2000

Total response = 263

Percentage response = 13.15%

ne following were the most frequent cited reasons for not car pooling or not wishing to so:

(1) Differences in work schedules; in many cases, irregular or unpredictable hours;

(2) Use of MARTA bus transportation;

(3) Rides bicycle.

ggestions considered essential for car pool participation included:

(1) More information on fellow employees who might car pool, especially addresses and schedules;

(2) Expansion of MARTA service to and from the Tech campus;

(3) Reduced motor vehicle registration;

(4) Special campus parking spaces;

(5) Better bicycle paths and racks on campus to encourage bicycle use.

A proposal for development of a

METROPOLITAN ATLANTA
TRAFFIC ALLEVIATION PROGRAM
(TAP)
THRU RIDE SHARING

proposed by

Stephen L. Dickerson
School of Mechanical Engineering
Georgia Institute of Technology

under

Contract with
DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA
in cooperation with
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

Georgia DOT Contract No. 5-74
July 1974

Objective

To substantially reduce traffic congestion in the Atlanta region by July 4, 1975 and to substantially eliminate it by July 4, 1976. Subsidiary objectives are the reduction of energy consumption and air pollution.

Basic Principle for Achievement

Every commuter driving his personal auto is presented with an attractive offer to modify his commuting habits to a mode of transport which is less congesting, less polluting, less expensive and fuel saving. The mechanism for interfacing with the individual would be through existing organizations, primarily employers and civic groups, each of which would be encouraged to have separate projects that contribute to the whole.

Organizational Structure

The program would be carried out principally by the Atlanta Chamber of Commerce with technical assistance from the Georgia Institute of Technology. The Chamber would be under contract to the Georgia Department of Transportation using largely Federal funds under a FHWA program. Policy decisions would be made by a group with representation from ARC, the Atlanta Chamber of Commerce, the Atlanta Junior Chamber of Commerce, the Federal Highway Administration, Georgia Department of Transportation, Georgia Institute of Technology and MARTA. Each of these organizations would have an active roll in implementation of the program as follows.

ARC: Review all plans and activities for consistency with and/or impact on regional transportational planning. Approve proposals submitted for federal funding.

Chamber: Provide a professional staff to manage the project and to interface with employers and civic groups. This staff would promote and assist with the implementation of employer and civic group transportation projects. They would attempt to minimize the burden of such projects on the respective organizations.

Jaycees: Provide volunteer assistance to the Chamber. Particularly in making initial contacts and in giving talks to civic groups and employers.

Program Goals

Employer Program
- 30 complete comprehensive transportation studies
- 60000 employees included
- 10000 employees autos removed from rush period traffic

Civic Group Program
- 50 complete neighborhood programs
- 20000 households included
- 4000 autos removed from rush period traffic

General Public Participation
- 10000 responses
- 1000 autos removed from rush period traffic

Park and Ride Lot Program
- 100 lots included
- 10000 parking spaces provided

Achievement of these goals would assure a substantial reduction in congestion and continuation for a second year.

The removal of 15000 autos per working day has a measurable benefit of the order of $40,000,000/year

Advisory Group of Involved Citizens

An advisory group of involved citizens would have bimonthly luncheon meetings to input the process of achieving the goal. This group would grow dynamically as more and more people become involved. They would represent themselves, employers or civic groups.

Budget Summary

Total Program Dollar Costs	$ 88,740
In-Kind Contribution of Jaycees, GDOT and MARTA 29 man weeks at $500/week	14,500
	$103,240
In-Kind Contribution	14,500
GIT Matching Contribution	6,500
Chamber Matching Contribution	5,000
Total requested of FHWA	$ 77,240

FHWA: Provide review of plans and authorize funding of project from federal highway funds.

GDOT: Award and monitor contracts with the Chamber and Georgia Tech. Implement a park and pool parking system. Lead a state employees effort.

GIT: Provide general technical support in preparation of materials, data processing, demographic surveys, pool and bus operations, economic analysis and project evaluation.

MARTA: Help develop and furnish materials to encourage bus ridership in conjunction with the project. Help develop proceedures for using data to improve bus service.

Program Description

The TAP has three principal efforts - an employer program, a civic group program, and a park and ride lot program. Supporting these programs are tasks in the areas of publicity and data processing. Provision is made for continuing and expanding a system whereby the general public may receive carpooling and transit assistance directly. However, the emphasis is on developing comprehensive programs with employers and civic groups.

For completeness, the detailed enumeration of tasks, which follows in a separate section of the proposal, includes highway system modifications. However that is only a suggestion to the Georgia DOT with respect to this proposal and funding is not requested.

TAP would provide to employers, civic groups and individuals services leading to improved commuting transportation. This service would include advice and assistance in the following areas.

1. Promotion of the concept that there might be a better way.
2. Survey of transportation needs and desires.
3. Collection of data on commuting patterns and available transportation services.
4. Study of economic and non-economic benefits and penalties of alternative strategies for meeting the needs and desires.
5. Data processing.
6. Development of recommendations for action.

E-25-641

GEORGIA INSTITUTE OF TECHNOLOGY
ATLANTA, GEORGIA 30332

SCHOOL OF
HANICAL ENGINEERING

September 30, 1974

Mr. Leland Veal
Assistant Director, Division of Planning and Programming
Georgia Department of Transportation
3013 Rainbow Drive
Decatur, Ga. 30034

Dear Mr. Veal:

This progress report contains no technical information. Rather it summarizes the accomplishments of the research project as they relate to the contract requirements.

I have found this a very stimulating project and one which has great potential for improving the performance of our urban transportation system without expending significant amounts of dollars. To a large extent the degree to which this obviously desirable result can be achieved will depend on the willingness of officials within and without the Georgia Department of Transportation to make those changes in the system that are demanded by logic and analysis but for which there is limited experience.

Over the course of the next year while I am away from Atlanta I hope to keep in contact with you and others who will be working on the project. It has been a pleasure working with you as well as that of numerous other people in the department, the State government, the Chamber of Commerce, the Jaycess, and the FHWA.

Sincerely yours,

Steve Dickerson
Associate Professor

SD:gc

copy: Hugh Tyner, GDOT
Richard Graves, GDOT
Bill Lawson, GDOT
John Hassell, GDOT
Richard Cobb, Office of Planning & Budget
Dave Garrity, Office of Planning & Budget
Bette Hines, Atlanta Chamber
Julia Bottin, GDOT
Robert Bowling, GDOT
Wendell Hester, GDOT
Grover Bowman, FHWA
Hershel Bryant, FHWA
Stothe Kezios, GIT
Milton Bennett, GIT

RESULTS OF GDOT RESEARCH PROJECT NO. 5-74
"DEVELOPMENT OF A CAR POOLING PROGRAM FOR GEORGIA"

prepared by

Stephen L. Dickerson
School of Mechanical Engineering
Georgia Institute of Technology

under

Contract with
DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA
in cooperation with
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

Georgia DOT Contract No. 5-74
September 1974

RESULTS OF GDOT RESEARCH PROJECT NO. 5-74

"Development of a Car Pooling Program for Georgia"

Task A - Review Current Programs

Report entitled "Selected Carpooling Efforts in the Atlanta, Georgia Metropolitan Area During the Energy Crisis of 1973-74," 40 pages, June 1974, Original photoready copy delivered to Jim Fielding.

Task B - Prepare Presentations

Presentation text entitled "Pooling as a Mode of Urban Transportation," 26 pages, July 1974. Photoready copy and on set of slides (73) delivered to GDOT. The text and slides are divided into nine divisions as follows:

1. Characteristics of good urban transportation.
2. How pooling satisfies these characteristics.
3. Incentives that can be provided for pooling.
4. Alternatives to the carpool (van-pool, bus-pools).
5. Legal issues of pooling.
6. The essential things to do to get started.
7. The benefits of pooling to an employer.
8. How civic groups can participate.
9. The relationship to conventional mass transit.

Normally a person wishing to make a presentation would review the entire presentation and develop his own talk from the material available.

Task C - Legal and Insurance Investigation

Report entitled "Legal and Insurance Aspects of Carpooling, Vanpooling and Buspooling," 47 pages, June 1974. Original photoready copy delivered to Jim Fielding. This report should be particularly valuable to persons attempting to start vanpools and buspools.

Task D - Arrange Meetings with Public Officials, Employers and Civic Organizations. This task was handled almost entirely by Jim Fielding and others in GDOT.

Task E - Make Presentations to Public Officials, Employers and Civic Organizations. Presentations were made to civic, industral and governmental officials in Columbus and Savannah. Athens, the third anticipated city did not materialize because of delays in funding of their project.

Task F - Document Computer Programs

Report entitled "Documentation for a Carpooling Computer Program," 34 pages. Photoready copy and computer card deck delivered to Jim Fielding. Also a second card deck and single sheet entitled "IBM 360 Disk File Moficications" was delivered to Jim Fielding. The basic program is fast, has eight optional output formats and requires approximately 110 K bytes of core for 400 people in a single destination file. The IBM Modification is intended for situations where only small amounts of core are available. It has only one output format (can be changed by changes on a few lines of the program) and uses a disk file to store most of the information about people. It takes approximately 55 K bytes of core for 400 people in a single destination file.

Task G - Implement Pooling Project

No such project has been set up because no city has progressed to the point required. Columbus should be in a position to do so now in that the required computer programs are operational on their computer.

Task H - Promote a Viable Program for Atlanta

Report entitled, "A Proposal for Development of a Metropolitan Atlanta Traffic Alleviation Program thru Ride Sharing," 14 pages, July 1974. Essential agreement has been worked out on what needs to be done and who should do it. The FHWA, GDOT, ARC, The Atlanta Chamber of Commerce, the Atlanta Jaycees, MARTA and Georgia Tech all have essential parts in this plan. An ARC resolution supporting the final development of this project is in process. All parties are proceeding to obtain approval. The State of Georgia appears to to be making good progress toward becoming a "model employer" with respect to its Capital Hill employers.

Task I - Implement Computer Matching in Georgia Cities.

Both Savannah and Athens have copies of the computer program and the documentation. To date they have been unable to devote local staff effort because of delays in project funding. Therefore, the program is not operational in these cities. Dr. Mel Corley stands ready to assist these cities at such time as they are ready.

Task J - Alternate Governmental Measures to Encourage Pooling.

Report entitled, "Measures to Increase the Use of Pooling as a Means of Urban transportation in Ga." 29 pages, August 1974. Photoready copy delivered to GDOT. This report develops in conceptual terms modifications that might be made in the states's

1. road systems,
2. laws, rules, and regulations,
3. educational system,
4. fees and taxes and
5. research efforts

which would promote pooling. Several specific examples are given.

E-25-641

FINAL REPORT

A text for a 35 mm slide presentation on

POOLING AS A MODE OF URBAN TRANSPORTATION

prepared by

Stephen L. Dickerson
School of Mechanical Engineering
Georgia Institute of Technology

under

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June 1974

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Georgia DOT Contract No. 5-74
June 1974

How To Use This Text

The text and accompanying 35mm slides (2" x 2") are designed to provide flexability in presenting the case for pooling (carpooling, vanpooling, bus pooling) and to indicate how such pooling can be initiated by governmental units, employers and civic groups. Generally all three should be involved in a cooperative program in an urban area.

The arrangement of the text is as follows:

- There are nine basic divisions of the material
  1. Characteristics of good urban transportation.
  2. How pooling satisfies these characteristics.
  3. Incentives that can be provided for pooling.
  4. Alternatives to the carpool (van-pools, bus-pools).
  5. Legal issues of pooling.
  6. The essential things to do to get started.
  7. The benefits of pooling to an employer.
  8. How civic groups can participate.
  9. The relationship to conventional mass transit.
- Within each division individual blocks of information are typed up in block or paragraph form along the right side of the page.
- Adjacent to each block on the left is an illustrative slide. There may be more than one slide for a given block however only one is shown. If more than one slide is used with a given block of text the number of slides is given below the illustration and the symbol (†) is used to indicate when to change slides.
- Many blocks have key words underlined so that the experienced speaker can give the talk referring only to the key words.
- Many blocks have portions of the block enclosed as is this paragraph. This material can be omitted for purposes of shortening the talk.

In using the material the speaker may choose to delete certain divisions. For example,

Division 1 could be deleted if the audience is well aware of the desirable characteristics of urban transportation or if time must be saved.

Division 1 and 2 can be deleted if the audience already is convinced pooling is the greatest thing going in urban transportation.

Divisions 3 and 6 can be deleted if the talk is not for the purpose of causing a pooling system to be implemented but rather only to explain the pooling concept.

Division 4 can be deleted if only carpools are of interest.

Division 5 may be deleted if legal problems need not be discussed.

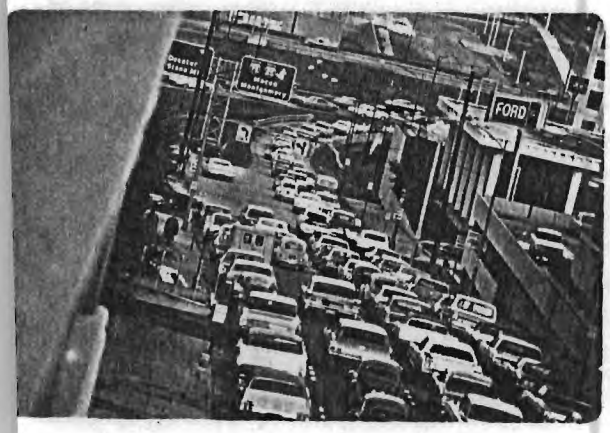
Division 7 is addressed primarily to employers.

Division 8 is addressed primarily to civic groups.

Division 9 can be deleted if bus and rail systems are non-existant in an urban area or to save time.

In Division 2 there are comparisons of pooling to other alternatives particularly the private auto, bus and rail transit. Im many respects, pooling is presented as superior to all three. Before a particular audience one may wish to omit comparisons reflecting unfavorably on one or more of these alternatives. Certainly each has its place in the overall scheme of urban passenger transport. The purpose of this talk is to show that pooling is an under utilized mode which has many desirable characteristics.

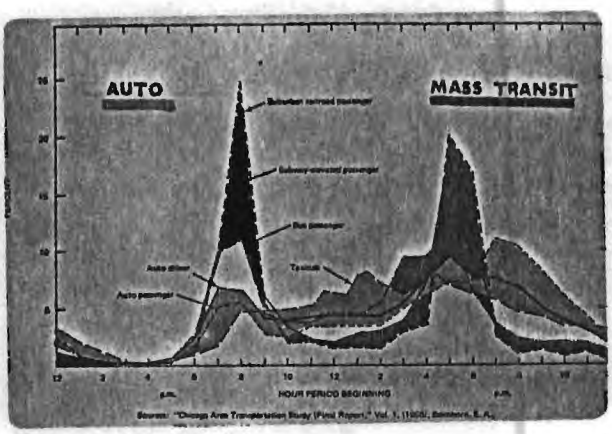
Division 1
Characteristics of Good Urban Transportation



† This talk concerns urban transportation and ways it might be modified to better serve the needs of the citizens of our urban areas. First lets look † at the features that are desirable in an urban transportation system. One of those features is the ability of the passenger to travel directly † from origin to destination without a transfer. Such a feature generally results in faster transportation as well as eliminates the waiting time † required to make transfers. Americans seem to place a greater penalty on waiting time than on riding time, possibly because, when waiting they don't seem to be getting anywhere.

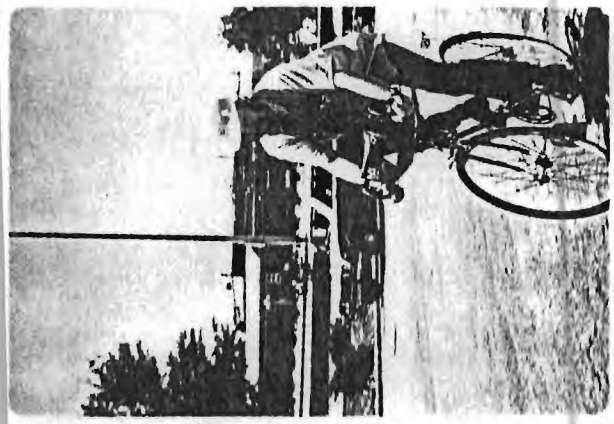
† A second desirable feature of urban transportation is a reasonable level of privacy. It is characteristic of Americans that they dislike being close to other people. Studies have shown for instance, that most Americans prefer to stay at least a yard away from their neighbors even in personal conversations. Many forms of urban transportation require that the passengers be packed very close together during peak hours.

† One feature of a good urban transportation system is a high level of amenities as illustrated by this slide. Such things as stereo music, refreshments, good lighting and individual environmental control are desired features as well as comfort and lack of distracting noises.

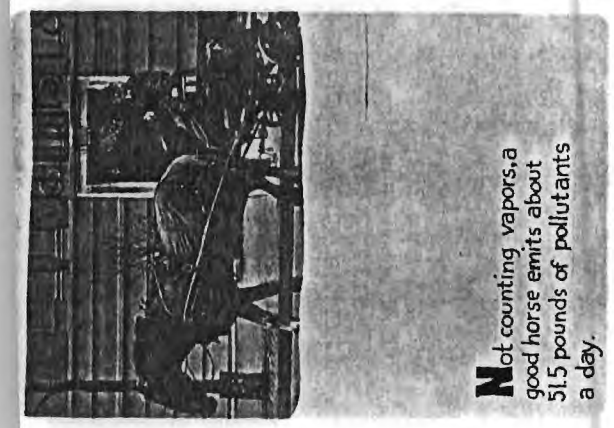


† Another feature one desires in urban mass transportation systems is the capability of meeting very high peak demands without incurring the very large costs that typically are incurred when demand is highly peaked. This peaking characteristic is the primary reason why mass transportation systems throughout the United States have found themselves in financial difficulty. Many buses must be purchased and drivers hired just to meet the demand of a few hours per day. Notice on the slide how mass transportation is much more highly peaked than private auto transportation.

† Another feature of good urban transportation is a high average speed of travel. Studies conducted in the Bay Area of San Francisco have shown that the typical commuter values his time at nearly $3 hour. This means that if he's able to save six (6) minutes in a one-way commute he is willing to pay 30¢ for that time average.

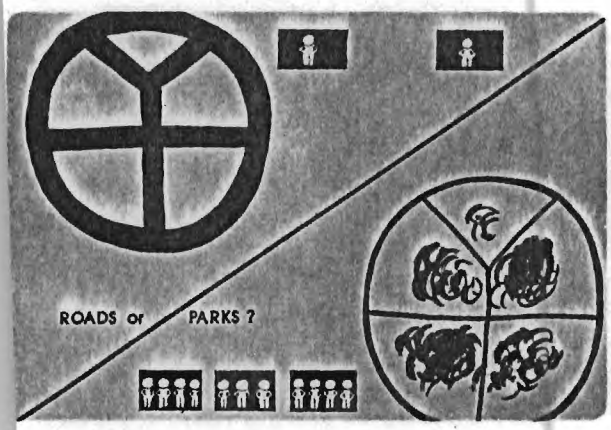


† A feature of our ideal urban transportation is that a small amount of energy or fuel be consumed for each passenger mile. That is, we would like to use the smallest number of gallons of gasoline or other fuel for each mile that one passenger travels. We are all aware of the high fuel consumption per person of the automobile with only the driver on board.

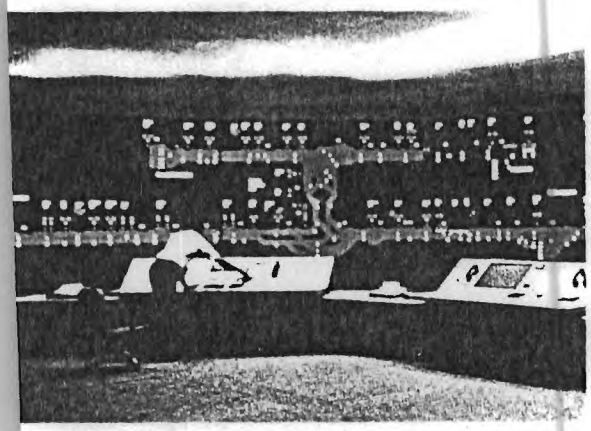


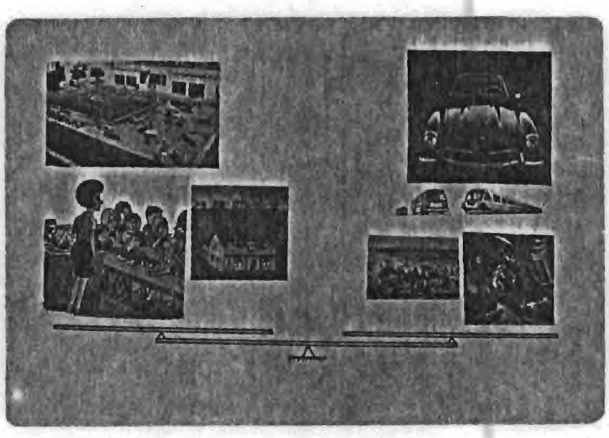
† One of the most frequent complaints concerning our present mode of urban transportation in large cities is the high contribution of the automobile to air pollution. I guess most of us here today cannot remember the problems of pollution we had when the horse was the dominant mode of transportation. Why not make further improvements?

† An eighth feature of an ideal urban transportation system is the ability of that transportation system to use the least amount of land area possible. If we use a large amount of land for streets we have little left for parks or other valuable uses. This translates into the need to have a very high capacity for each lane of traffic whether we are considering a lane with buses traveling on it or a lane with cars traveling on it or a lane of rail rapid transit. The idea is to have as many people pass a given point in one hour as is possible. A very simple formula for this capacity tells us that we need to have many boxes of people go by in every hour and that each box should have many people in it. We can get high lane capacity by increasing the number of boxes or the number of people per box.

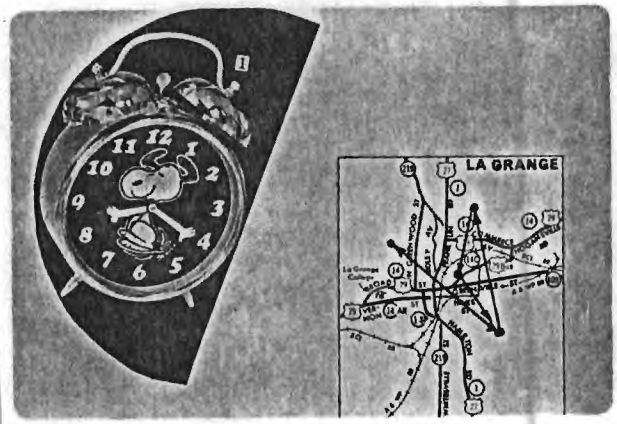


† Most of us prefer an urban transportation system to have what might be called automatic routing. We would like to get into our transportation system and simply tell it where to go and then go there. When we get to the other end we would simply get our and have no concern what-so-ever with how the system was routed from one end to the other. Such systems, from a technological standpoint, are the concern of many very competent engineers. It seems to be very difficult to devise a system which can travel automatically from one point to another.

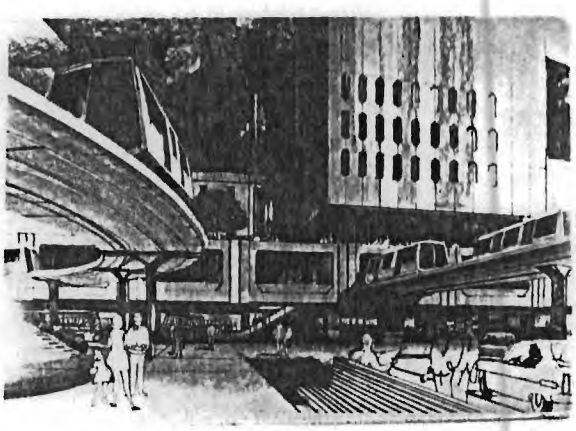




† Another feature which we would like in our ideal urban transportation system is low cost. That is, we don't want to spend much money getting from home to work and back again. Money spent for transportation cannot be spent for housing, health care, entertainment, education or any of the other countless things that are competing for the limited physical resources of our society. Thus, cost must always be considered. We will see shortly that the automobile, carrying the driver only, is a very costly mode of transportation. However, it appears that most people don't recognize how expensive it is. This, of course, gives the automobile an advantage that is somewhat undeserved.

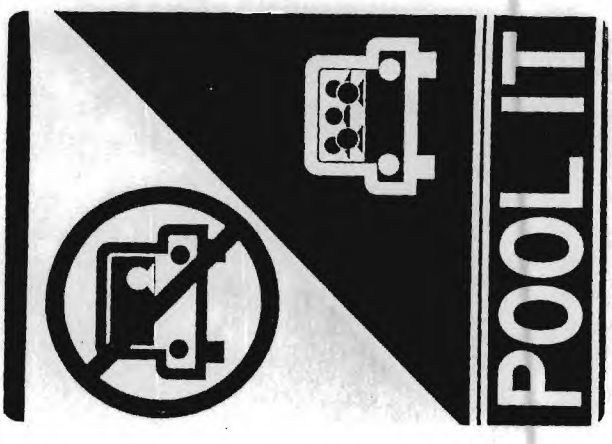


† Eleventh and lastly the ideal urban transportation system provides flexibility. A person wants to be able to go where he wants, when he wants. If perfect flexibility with respect to time cannot be achieved at least the system should be on schedule so that waiting times and uncertainties in the time of arrival at a destination are minimized.

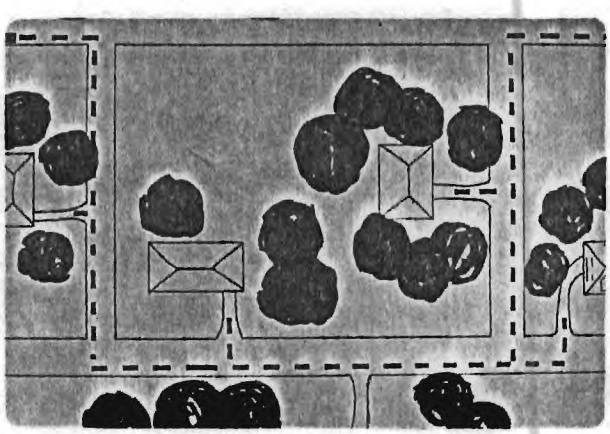


† You may wonder how all these very desirable features could possibly be achieved without extensive research and development; without applying the best minds the country has to offer over a long period of time. Certainly such a system is far in the future and would perhaps look much like the system in this slide where sleek vehicles whisk along all new guideways.

Division 2
How Pooling Satisfies These Characteristics

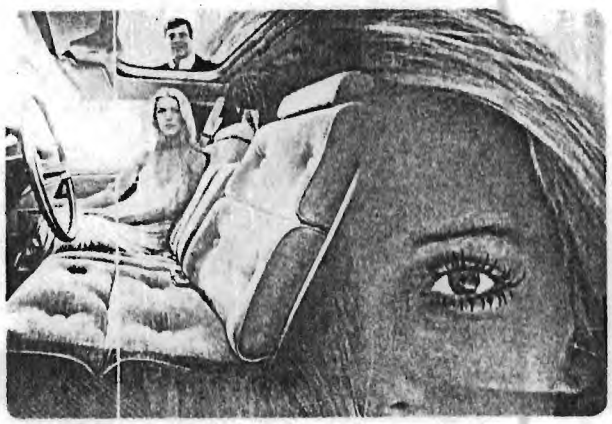


† It turns out however, that we do not have to look very far for this ideal urban transportation system. As a matter of fact, various forms of ride-sharing or pooling provide excellent characteristics in all of the respects enumerated previously. Therefore, lets take a detailed look at how good pooling can be as a mode of urban transportation.

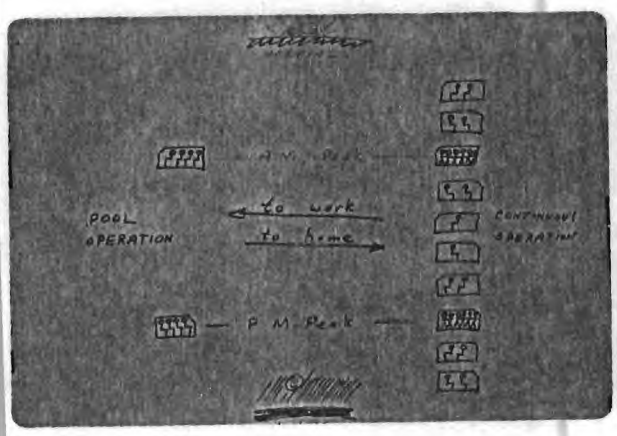


† Certainly it is door-to-door. The driver adjusts his route to pick-up each person at his origin, or very near his origin, and to drop that person very near his destination, or at his destination. No transfers need to be made. Indeed, it is hard to visualize a form of transportation which has this door-to-door feature other than the private automobile or a pool vehicle, unless, one is willing to pay the very high expense of providing taxis or dial-a-bus for everyone traveling to and from work.

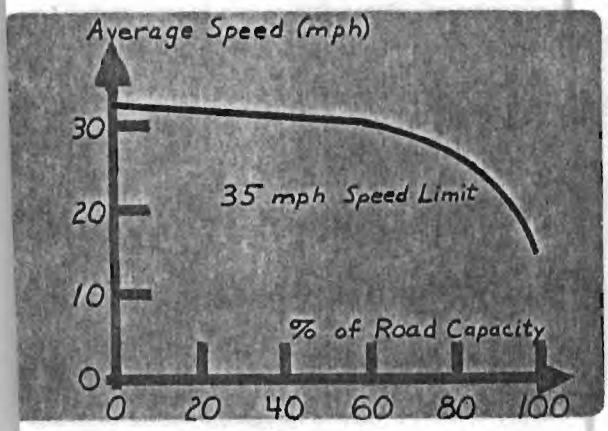
† Lets consider privacy. Four people in a full size American sedan are seated extremely comfortably and are seated about a yard apart. In any case, the pooler is not exposed to a random collection of individuals. Thus, the pool system maintains a degree of privacy which is hard to match in any other way other than the private automobile.



† Consider again amenities. Private automobiles can be equipped with air conditioning, are likely to have a radio, allow placement of a glass holder in the windows if one desires refreshments on the way to and from work and have plenty of room to read the newspaper or a magazine. Indeed a pool-vehicle can provide a high level of amenities; a level of amenities much higher than one is accustomed to receiving on the urban bus, or even the urban rail transit system.

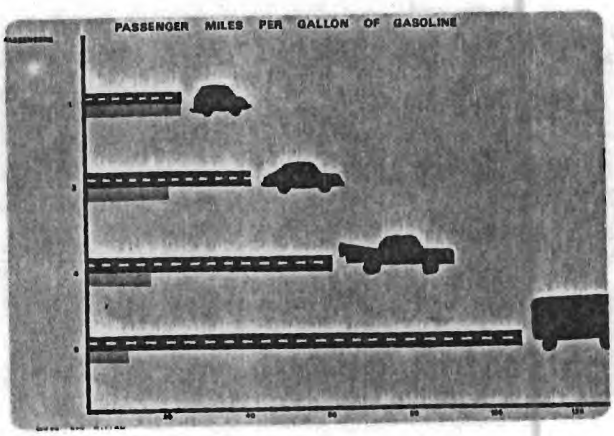


† Now lets look at the next slide and consider the peaking characteristics of pool systems. The slide illustrates the difference in vehicle loading characteristics between a pool operation and a continuous operation. Because the pool vehicle, whether it is an automobile, van or bus, makes only one round trip per day, it does not saturate during peak hours. That is, it does not become standing room only at the peak hours. Furthermore, there is no high continued expense during the day when the system is not in use. This is because in a pooling system we assume that the driver is also making the trip for his own benefit and therefore does not need to be a professional driver.

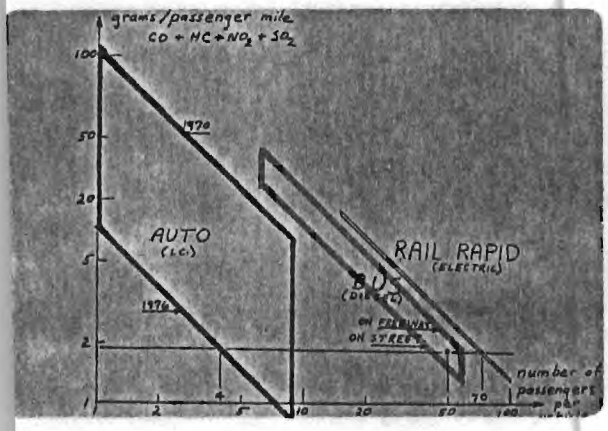


† The question of speed of pool trips is best answered by asking the question, "How fast could we make the trip during the rush hours if everyone in the city or some significant fraction of the people in the city began to pool?" Indeed, extensive pooling would speed all trips made during the peak hours by increasing the speed of traffic. On a door-to-door basis it would be faster than everyone

using their own automobile; it would be faster than taking the bus; it would be faster on the average than any other current mode of transportation. The slide illustrates the phenomena everyone knows from experience - speed drops off drastically as the number of vehicles on the road becomes too large.

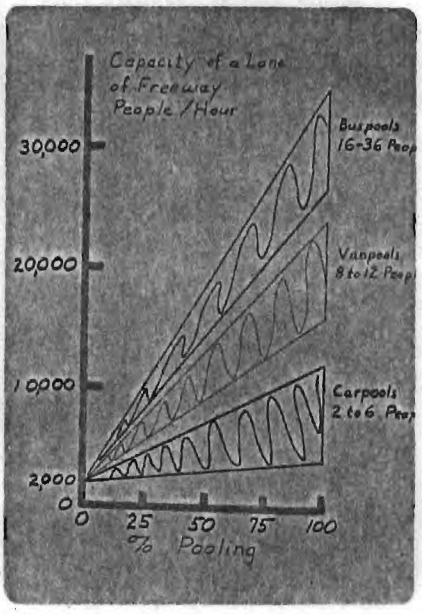


† Now let us look at the question of <u>energy</u>. This slide illustrates that as more people ride together in the same vehicle the amount of energy consumed is reduced. This occurs even though the vehicles become larger and provide essentially the same amount of room per person. The amount of energy consumed is reduced. When there are eight people in a van we achieve approximately 100 passenger miles per gallon. This figure is greater than any city achieves in the operation of its bus system. In fact, four people in an automobile do as well on the average as city buses. There is no more economical way of mass movement than pooling systems, with a reasonable number of people in each vehicle, except for systems which provide extremely low levels of amenities such as bicycling.



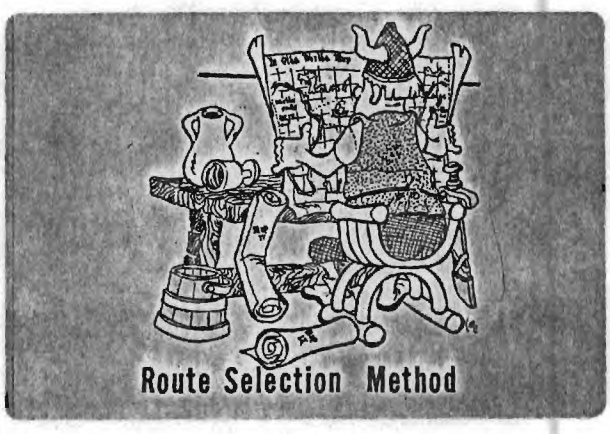
† Let us now look at the question of <u>air pollution</u>. The new 1976 standards for automobile emissions are so stringent that when four people get into an automobile their individual contributions of carbon monoxide, hydro-carbons, nitrogen-oxides and sulfur oxides come to only 6/100 ounce per mile of travel for each passenger. This low level of air pollution is difficult to meet even with conventional forms of mass transportation. However, to be fair, electrically powered vehicles, be they automobiles or rail rapid transit systems, at least put their air pollution in

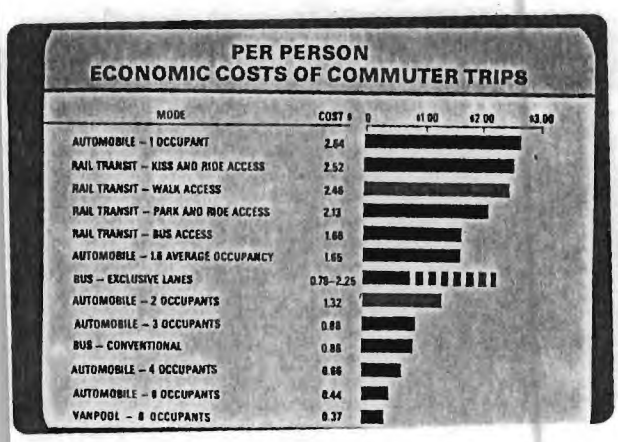
rural areas rather in urban centers. This graph shows that with four people in an automobile which meets 1976 standards, a diesel bus must have 50 passengers and a rail rapid car must have 70 passengers aboard to do as well.



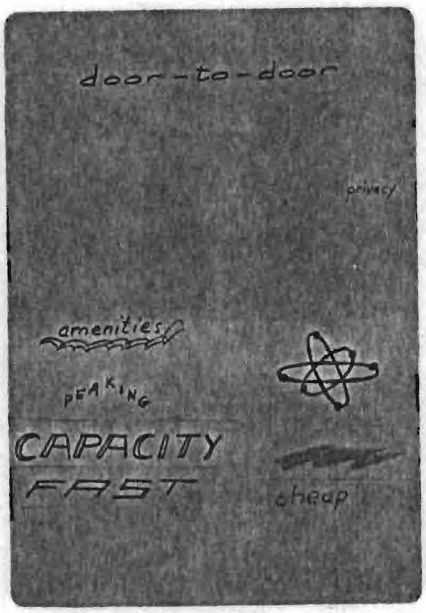
† Next, consider the capacity of a lane of freeway or a lane of city street on which a pool vehicle is operating. Four people in a conventional automobile are equivalent to 8,000 people per hour lane. This figure is about one-half of the seated capacity that will be realized by rail rapid transit on a lane of track in Atlanta. If one travels by van-pools with say 10 passengers per van or with bus-pools with say 30 passengers per bus the capacity of a single lane of freeway becomes so large that there is no place in Georgia that even one lane of freeway could be fully utilized. Also, it is clear that if one were to use pooling extensively there would be no traffic
† conjestion during rush hours. Another way of looking at it is that there is plenty of capacity in existing automobiles to meet current demand.

† Next, lets consider the question of automatic routing of vehicles. The passenger simply enters a pool vehicle and it automatically takes him to his destination. This feature is not found even in the private automobile let alone other forms of mass transportation which are possible today.





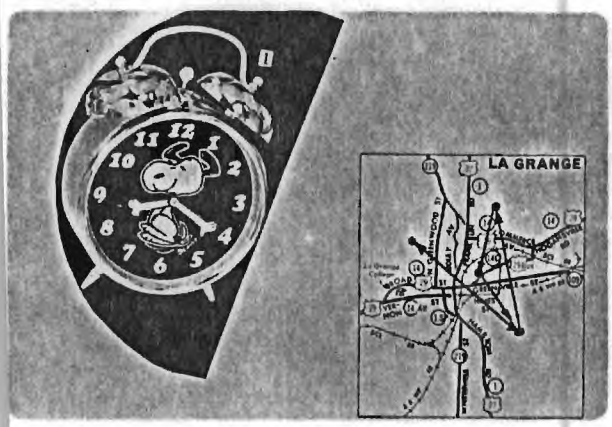
† Next let us look at the question of dollar costs to provide a trip in a pool vehicle. One way of looking at it, in the case of carpools, is that there is no dollar cost associated with carpooling since the vehicle would have been commuting anyway and no new roads or parking areas need be built to accomodate the pool vehicle. This is because there will be fewer cars on the road and fewer parking lots required. However, if one looks at the average cost of a trip on a pool vehicle and compares that with the single passenger automobile it is clear that costs are dramatically reduced as the number of people in the pool increase. Here, again, it can be demonstrated that a six man automobile pool would generally result in less costly transportation than a bus trip, and a two man automobile trip pool would result in a less costly transportation than a rail rapid trip. These costs include road costs and parking, not just the out-of-pocket costs. One should keep in mind that out-of-pocket costs on either mass transit or the automobile are often far less than actual average costs.



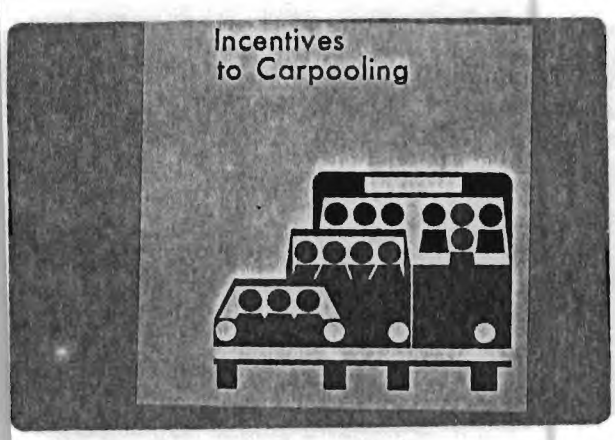
† To summarize, it is essentially impossible to have more desirable characteristics for an urban transportation system than that provided by a well organized and implemented pooling system. To reiterate, it provides door-to-door transportation; it provides reasonable privacy although not the privacy of the automobile; it provides a high level of personal amenities, comparable to that of the private automobile; it provides excellent peaking characteristics in that its capacity is extremely large; it is economical to use this capacity for only short periods of time during the day; it is a fast mode of transportation ---

possibly the fastest of all conventional alternatives when one considers the increase in traffic speed when pooling is used in place of a private automobile --; it has low energy requirements. When one has six people in a single vehicle the energy requirements of a pool system are less than any other conventional alternative. The same can be said for air pollution. The capacity of a lane of freeway exceeds the seated passenger capacity of even a rail rapid transit system if one has above eight passengers per vehicle. The system is completely automatic -- the passenger in no way having to guide the vehicle or make decisions or transfers. Lastly, it is in fact one of the cheapest modes of transportation.

† Least we think that there are only advantages to pooling and no disadvantages, let me mention the primary disadvantage before going any further. Pooling in general does not provide the flexibility of the private automobile nor the mass transportation alternative of buses and rail systems with regard to when and where a person will make a trip. Related to this is the general desire of people not to be dependent on others. To some extent this handicap of pooling systems can be overcome and we'll discuss that later. This particular handicap prevents pooling from being the universal mode of transportation. Rather it must be used for those circumstances where the lack of flexibility is not a severe handicap. The primary situation where this is the case is when a commuting type trip is made. That is, a trip to and from work, or a trip to and from school, or perhaps a trip to and from shopping, or to and from dancing lessons, etc. However, since contingencies will always arise, any good pooling system must be accompanied by other modes of transportation as backups to provide for those emergency trips.



Division 3
Incentives that can be Provided for Pooling

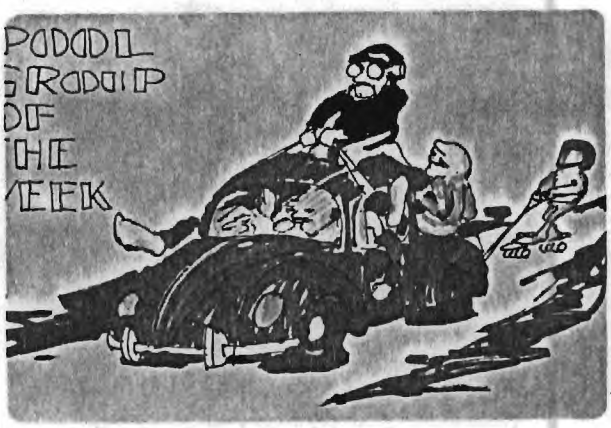


† Now that we are convinced that pooling is the most needed innovation to give the cities a balanced transportation system, let us look at the mechanisms whereby pooling can become a widely used mode of urban transportation. I should point out, of course, that pooling is now second only to the private automobiles in virtually every city in the U.S. as a mode of transportation.

† First, we must build enthusiasm for pooling. Currently many people -- particularly those people making employment trips -- can afford using an automobile and have a bias against carpooling. The best way of reducing this stigma against carpooling is for those people who are considered to be leaders of the community to provide leadership. The best possible situation in a firm, for instance, is to let it be known that the chairman of the board and the president together with their secretaries are commuting to and from work together. Of course it might be wise not to let the wives of the chairman and the president know about it. Beyond this leadership model, there are more tangible incentives that can be offered.

† One incentive is more favorable parking. In many places where there is traffic conjestion parking is also a problem. Thus, if a reserved parking spot or a reduced parking fee could be given to those people who pool, this becomes an important incentive. If the reserved parking spot is in a more favorable location such as at an entrance

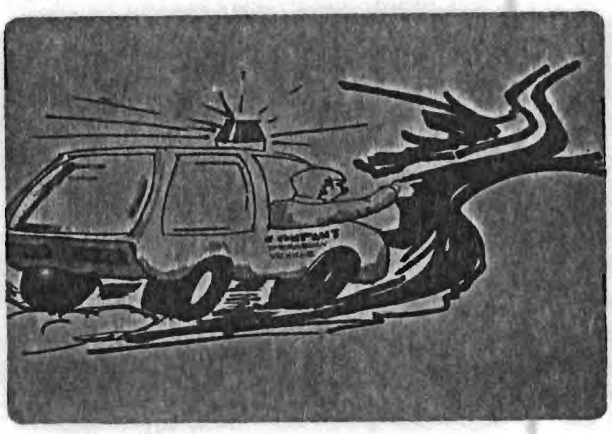
or in the shade, this also helps. Such actions demonstrate the commitment of a firm or city government to the pooling concept.



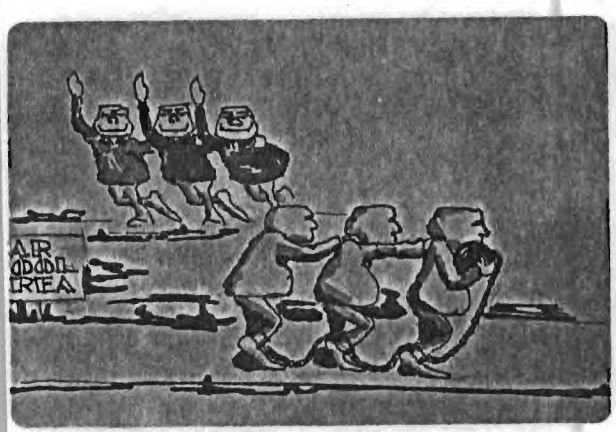
† Although it may seem a little extreme, it is entirely feasible to provide actual monetary or monetary-like advantages to people in carpools. For instance, firms have offered a "Pool of the Week" prize on a lottery basis. This might be something like a tank full of gasoline. Others have simply offered a monetary payment to all employees who do not use a private automobile driving to and from work. That is, they may be allowed say 50¢ a day for bus fare or carpool expenses if they choose not to use a parking space at the firm. Here in Georgia, Chatham County, where Savannah is located, has provided it's employees who choose to carpool or use mass transit one-half day of leave per month as an incentive to carpooling.

† Now let us consider the type of incentive that can be offered by highway departments or government agencies other than parking privileges. It is possible for the highway department to provide special privileges on the road to those people who are pooling. For instance, special access ramps to freeways on which only high occupancy vehicles are allowed to travel is one such incentive. Another, is providing carpool parking lots in residential areas for people to assemble and then continue together in a single vehicle to their destination. In the Atlanta region, several lots are being designated at shopping centers and
† at freeway interchanges for such parking. In Washington, D.C., as in some other major cities, special lanes are set aside for high occupancy

† vehicles. This is a particularly good incentive where the special lane moves much faster than adjacent lanes.



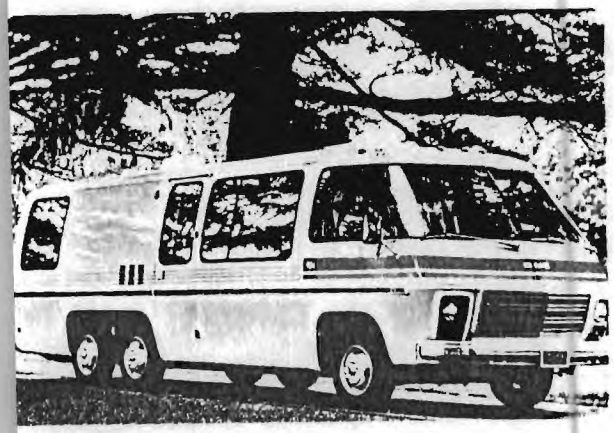
† Another incentive, and one of the most essential one, is some provision to <u>provide emergency transportation</u> for people who, having carpooled, find themselves without transportation for emergencies once they reach their destinations. Of course, if the area is served by a conventional mass transportation system this will provide some measure of emergency transportation as will a taxi system. However, because of the cost and inconvenience of these alternatives even if they exist, the loss of flexibility is significant. A good backup in some situations is an automobile provided to the employee for such circumstances. The availability of such an auto will make the employee feel more comfortable on those days when he does not anticipate any day time trips. On occasion a person may have to work late. In such circumstances his car pool would have to leave without him. It would be well if the employer could provide a company car overnight or subsidize a taxi trip for the person to get home.



† A final incentive for pooling is to arrange for employees who live near each other to have <u>approximately the same hours</u>. For instance, in a hospital where nurses are rotated through shifts, the rotation may be arranged in such a way that all those nurses in a certain section of the city are on the same shift. In many plants starting times vary only 15 or 20 minutes for various people in the plant. If the company would allow slight changes in starting and stopping times for those employees who wish to carpool this would encourage additional carpooling.

Division 4
Alternatives to the Carpool (Van-pools, Bus-pools)

† Let us consider now some actual alternatives to carpools which have become increasingly popular in the last few years. In St. Louis, there is a bus-pool operation which brings several hundred employees each day to McDonald Douglas's plant using ordinary school buses. Here in Georgia, † both Western Electric plants in Atlanta (one in Sandy Springs and the other in Norcross) have buspools operating to outlined areas. The one in Sandy Springs has a bus running between Canton and Sandy Springs. There's also a bus running between Gainesville and the Norcross Western Electric plant.

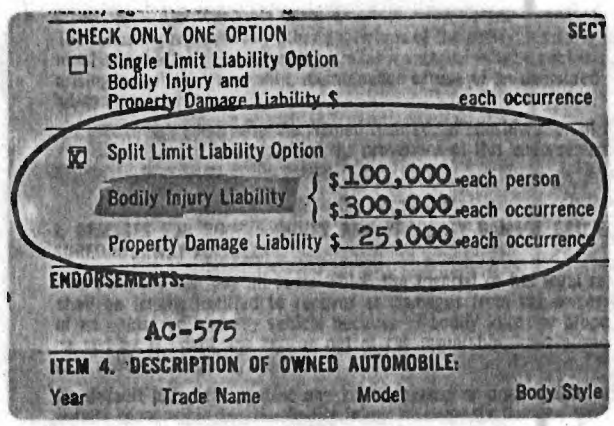


† Another alternative which has been little used, possibly because the equipment has just become available, are mini-buspools. Several companies † including Winnebago and General Motors have come out with small 10-20 passenger mini-buses. Many of these are quite well appointed and luxurious.

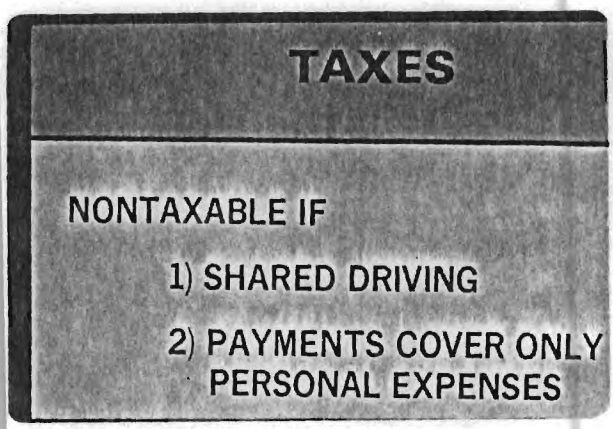
† Finally there's the van-pool. Probably the most outstanding example of this is the 3M van-pools in Minneapolis. This corporation has approximately 50 vans which it issues to selected employees, who in turn carry other employees to and from work. The service has proven extremely popular and in fact is a fringe benefit to the employees at no cost to 3M. In Atlanta there are † several informal van pools operating including the one shown here. This one attracts a very distinguished group of downtown businessmen.

Such pools can be made economically self-substaining and provide a high level of service as well as high energy efficiency and low air pollution.

Division 5
Legal Issues of Pooling


CHECK ONLY ONE OPTION SECT
☐ Single Limit Liability Option
Bodily Injury and
Property Damage Liability $ each occurrence
☒ Split Limit Liability Option
Bodily Injury Liability $100,000 each person
$300,000 each occurrence
Property Damage Liability $ 25,000 each occurrence
ENDORSEMENTS:
AC-575
ITEM 4. DESCRIPTION OF OWNED AUTOMOBILE:
Year Trade Name Model Body Style

† Let us now turn to some of the legal questions that surround pooling. The ordinary carpool in which a sedan is used presents no complications in general. In this case no money changes hands between the participants or, if one participant drives more than the others, the amount of money paid the driver compensates him only for the operating cost of the automobile including a pro-rated share of depreciation. In these circumstances the insurance companies have taken the point of view that conventional coverage insures the driver and his automobile. However, it is a good idea for the drivers to increase the limits of their liability insurance. This additional coverage is generally very inexpensive in cost. In fact, those people participating in a carpool who drive less than 2 days out of 5 or never drive are generally able to reduce the cost of their insurance by anywhere from 10-20% over what they would pay if they were driving a private automobile everyday to and from work.



† In a shared cost pooling situation the driver does not need to pay income taxes if he like the others is paying his share. Expenses include gasoline, maintenance, depreciation, insurance, taxes, tolls, vehicle license fees and interest to the extent that these are all bona-fide expenses of the driver.

APPLICATION
TO
GEORGIA PUBLIC SERVICE COMMISSION
FOR
Certificate of Public Convenience and Necessity

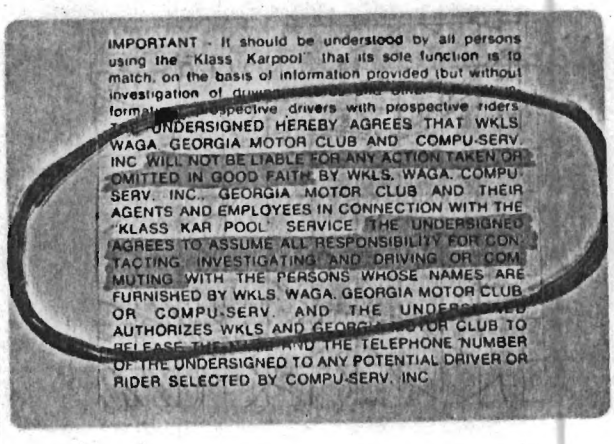
"TO OPERATE AS A CONTRACT CARRIER UNDER THE "MOTOR CARRIER ACT OF 1931"

Or

**TO OPERATE AS A COMMON CARRIER UNDER THE "MOTOR COMMON CARRIERS ACT OF 1931"

in the

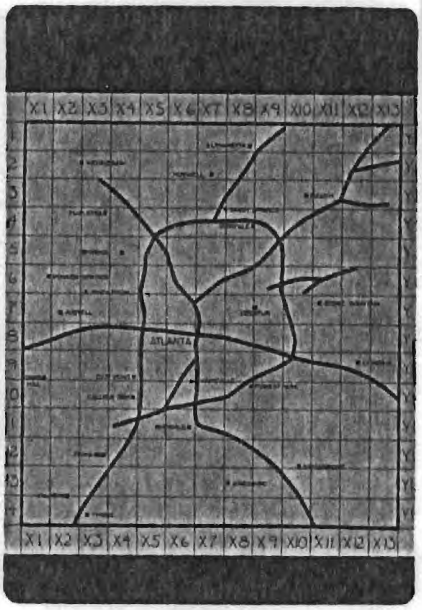
† In pools with more than 7 people in the vehicle a Public Service Commission certificate will be required for operation. In general, the Public Service Commission is quite prompt in processing such certificates. There are fees of approximately $70.00 to obtain a certificate. However, one finds obtaining insurance at a reasonable cost more difficult.



IMPORTANT - It should be understood by all persons using the "Klass Karpool" that its sole function is to match, on the basis of information provided (but without investigation of drivers' records and other matters) prospective drivers with prospective riders. THE UNDERSIGNED HEREBY AGREES THAT WKLS, WAGA, GEORGIA MOTOR CLUB AND COMPU-SERV, INC WILL NOT BE LIABLE FOR ANY ACTION TAKEN OR OMITTED IN GOOD FAITH BY WKLS, WAGA, COMPU-SERV, INC., GEORGIA MOTOR CLUB AND THEIR AGENTS AND EMPLOYEES IN CONNECTION WITH THE "KLASS KAR POOL" SERVICE. THE UNDERSIGNED AGREES TO ASSUME ALL RESPONSIBILITY FOR CONTACTING, INVESTIGATING AND DRIVING OR COMMUTING WITH THE PERSONS WHOSE NAMES ARE FURNISHED BY WKLS, WAGA, GEORGIA MOTOR CLUB OR COMPU-SERV. AND THE UNDERSIGNED AUTHORIZES WKLS AND GEORGIA MOTOR CLUB TO RELEASE THE NAME AND THE TELEPHONE NUMBER OF THE UNDERSIGNED TO ANY POTENTIAL DRIVER OR RIDER SELECTED BY COMPU-SERV, INC.

† Another concern of organizers of pooling projects is the liability that may be incurred from their promotional activities. If this is a concern it is probably a good idea to prominently display a disclaimer of some type upon any material which encourages a person to sign up for pool matching. However, it has been our experience that large companies are generally not concerned with this problem in matching up their own employees. It may be because most large companies carry insurance including workman's compensation to protect them in a blanket manner from suits that may arise from such activities.

Division 6
The Essential Things to do to Get Started

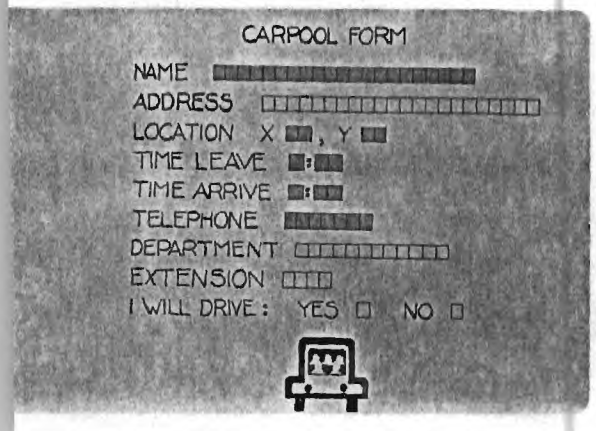


† Now let us look at the question of how to get started. One of the first ingredients is a grid map which divides the area of interest into X and Y coordinates. This map should generally extend at least 25 miles from the center of an urban area in order to include those people most likely to carpool. As you might expect those people who have the longest trip are those who have the greatest incentive to pool. Such a grid map would generally use squares of one to two miles on a side for the basic grid element.

† It is important of course that when such a map is prepared it has the right amount of detail. One does not need to show every street on such a map, but rather, all arterial streets as on this slide.

† The next or concurrent step is to provide publicity. In a work location publicity would frequently take the form of posters and announcements in the company newspaper. In a

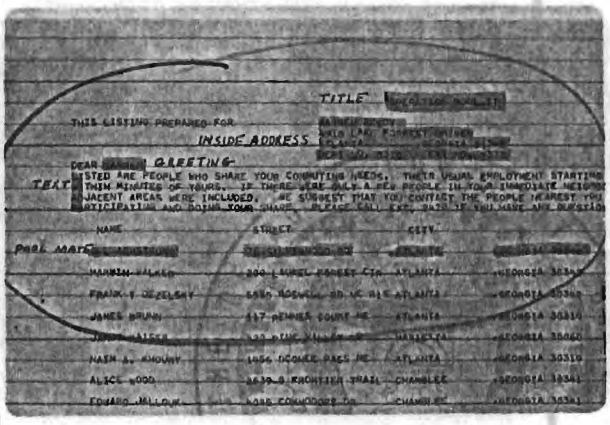
† city the publicity would take the form of advertisements and news stories in newspapers and news stories and spot announcements on radio and television.



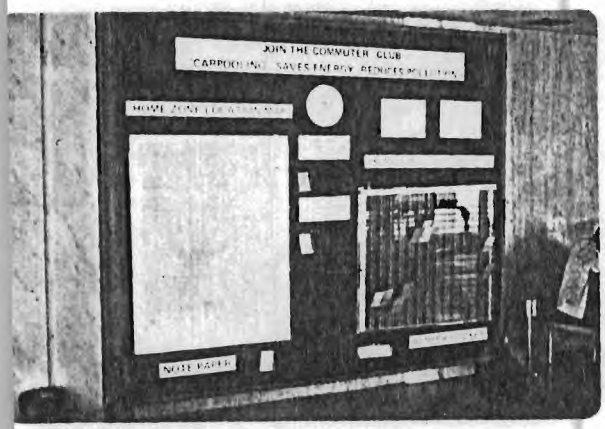
† Next some kind of form must be devised and distributed which will allow people to submit in writing the information needed to provide a good pool match. This form will generally have a place to provide the information shown on this slide although some of the information which might be considered more personal may not be

required. For instance, the absolute minimum information is indicated in yellow on the slide.

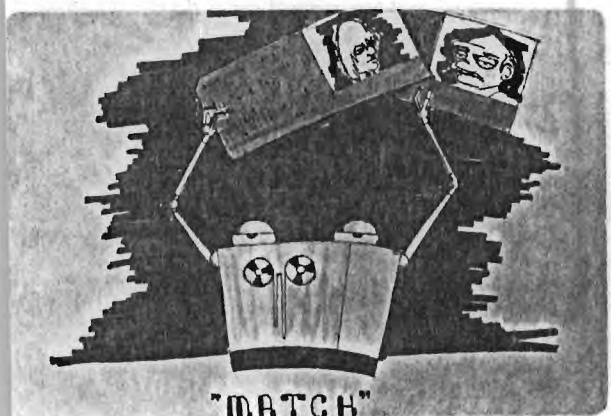
† Here is an actual form used in Connecticut.



† Once these forms have been completed there are two ways of <u>making the matches</u>. One way that is becoming increasingly popular is a computer matching technique which provides for every participant a listing of those people who are potential pool mates. This listing is generally done on the basis of location and time of trips. Thus, the information about individuals does not become public and a given individual participating only receives the name of a few other individuals who have similar hours and locations. It is also possible to take into account such things as sex preference and preference for riding or driving. Also, one may wish to restrict those persons matched up to people who work in the same company or to a selected set of companies.



† A second means of matching people once they have completed the information form is to provide some sort of <u>manual match</u> board of which an example is shown.



† Experience has shown that even after a manual match board has been in operation or a computer listing is available there will be a certain hesitancy on the part of people to get together. It is, therefore, desireable to provide some <u>personal contact with potential pool mates</u>. In a work location this can be done by calling a meeting at a given time of all those people in the firm who have similar commuting requirements and encourage them at this time to get to know

each other personally. Refreshments should be served and some sort of program to build enthusiasm presented. A good movie is available from the Georgia Department of Transportation. In this way the participants will learn that those people whose names appear on the lists of potential pool mates actually do occasionally take baths and in fact might be quite interesting to ride with.

† After the pools have been initiated the system will not maintain itself. There will be a gradual disintegration of pools for various reasons: job turn-over, changes in time of work, people moving from one place to another, and so forth. Therefore, it is necessary to provide periodic renewal of the system through additional publicity, through additional rounds of matching and perhaps by putting into effect new incentives from time to time.

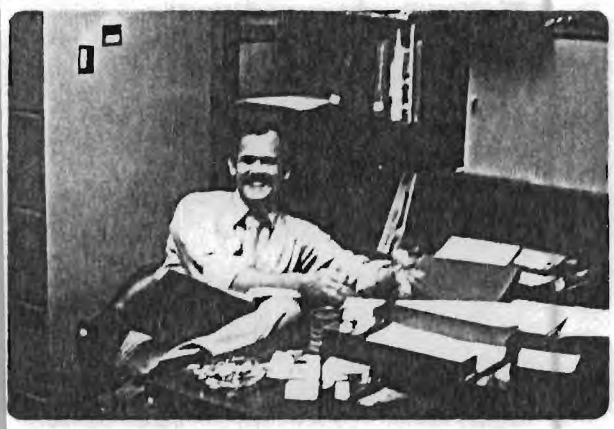
Division 7
The Benefits of Pooling to an Employer

SURFACE PARKING COSTS[1]
330 SQUARE FT/CAR

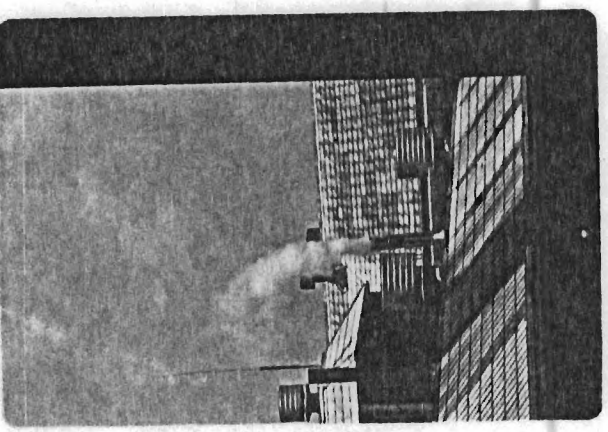
LAND COST PER S.F.	CONST. COST/ STALL	TOTAL COST/ STALL	ANNUAL NET INCOME /STALL REQUIRED TO AMORTIZE COST	ANNUAL OPERATING COST & PROPERTY TAXES /STALL	ANNUAL GROSS INCOME /STALL REQUIRED TO COVER OPERATING COSTS & TAXES & AMORTIZATION COSTS
$10.00	$248	$3,649	$369	$181	$550
$ 6.00	$248	$2,309	$233	$148	$381
$ 5.00	$248	$1,973	$199	$139	$338
$ 4.00	$248	$1,636	$165	$131	$296
$ 3.00	$248	$1,300	$131	$123	$254
$ 2.00	$248	$ 963	$ 97	$114	$211
$ 1.00	$248	$ 620	$ 63	$106	$169

[1] A PARKING STANDARDS REPORT VOL. 1. PARKING STANDARDS DESIGN ASSOCIATES 1971

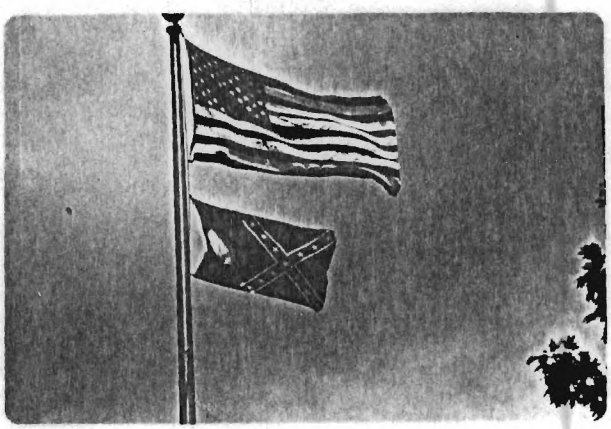
Up to this point we have discussed the reasons for pooling and how pools can be started. However, we realize that there must be an <u>incentive for employers</u> to become involved in pooling. So let us for a moment discuss the potential benefits to employers that result from starting a pooling program. First, there is the monetary incentive of reducing the <u>expense of providing parking spaces</u>. Depending on the circumstances this may represent a very large expense or a relatively minor expense for an employer. If a company needs additional parking spaces and has insufficient land to expand at ground level they will consider multi-story parking garages. This becomes quite expensive per space. Alternatively it may be desired to increase the building size (shown in red on this slide) and expand into existing parking space. Again there is a very high value on each parking space.



A second very tangible benefit these days is that a well organized pooling program represents a <u>fringe benefit</u> to employees. A fringe benefit that may well have zero cost. When a new employee is thinking of coming to work for the corporation it is nice to be able to tell the prospective employee that you will help him become involved in a pool. In fact, through the use of master lists you may be able to tell him the moment he starts to work who his potential poolmates are and what existing pools there are from his area. Thus a pooling program within a corporation can very well result in more satisfied employees.

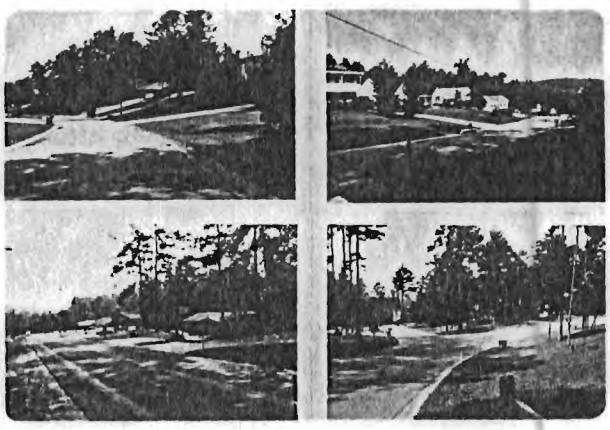


Third, experience has shown that people in a carpool are more prompt in their arrival at work and less subject to absenteeism. To some extent this advantage is reduced by the requirements that employees in a carpool all leave at the same time or must make special arrangements.



Finally many employers are beginning to realize that corporate citizenship is good business. As we have pointed out the use of pools have the effect of reducing energy consumption, reducing air pollution, reducing noise pollution and reducing conjestion on highways. Most corporations are now subject to the increases in costs due to the energy crisis as well as environmental controls and transportation problems. Employers realize that although their own actions may have only slight effects on these problems, if each one does its share a significant impact can be made.

Division 8
How Civic Groups can Participate

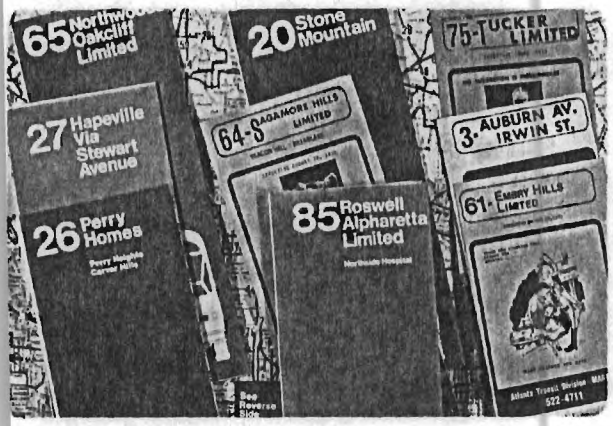


†We have discussed the employer as a primary entity in developing participation in pooling. A second group of organizations are civic groups †of various kinds. Churches, schools, charities, †community clubs, and social clubs are able to mobilize people for worthwhile activities.

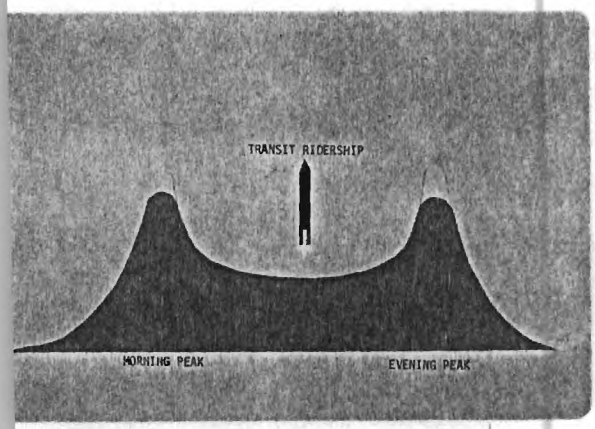
†The advantages of these organizations is that they are geared to particular neighborhoods where people live, while employers on the other †hand are geared to where people work. The combination of both employers and civic groups working together should be particularly effective.

†The best method of communicating with people in a neighborhood is likely to be door-to-door like the Avon lady. At each residence one would inquire as to interest in modifying the commuting habits of wage earners. From those that had an interest, data would be collected on location of work, time of commuting trips and any special preferences. This is similar to the process that employers would use helping employees. The data would probably be processed by a central computer service and returned to the neighborhood organization or mailed directly to the residences. However, a local hand matching process would also be quite feasible.

Division 9
The Relationship to Conventional Mass Transit



† If mass transit exists in a community in the form of a bus company, there are opportunities to tie together a pooling program with a bus promotion and improvement program. This can be done by encouraging potential poolers to consider bus transportation by furnishing them simultaneously with information on appropriate bus service and potential pool mates. In a sophisticated computerized system, the bus schedules appropriate to each individual would be printed on his computer output sheets. It would be equally good to furnish appropriate standard bus schedules as shown in this slide. Also, the data gathered for pooling promotion can be used to provide the bus company with data that would be helpful in modifying its service to better meet the demands for urban movement.



† Remember also that pooling is ideally suited to peak demands and takes people out of their cars. Therefore, people on the off peak hours will use mass transit more frequently. This will have a financially beneficial effect on mass transit which in turn will allow better service to be provided its patrons.

FINAL REPORT

MEASURES TO INCREASE THE USE OF POOLING AS A MEANS OF URBAN TRANSPORTATION IN GEORGIA

prepared by

Stephen L. Dickerson
School of Mechanical Engineering
Georgia Institute of Technology

under

Contract with
DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA
in cooperation with
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

Georgia DOT Contract No. 5-74
September 1974

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Contents

Abstract

This document concludes that pooling in its various forms, carpooling, vanpooling, and buspooling, is an important ingredient in reducing traffic conjestion during peak periods of the working day. It is also significant in reducing costs, both economic and social (energy and pollution). Measures that can be undertaken to increase the prevalence of pooling are presented. These measures are low in cost and promise large benefits. Lastly an organizational form, "a pooling utility" is advanced and briefly described.

I. Introduction

This report is addressed to the problem of creating an environment in Georgia more conducive to widespread use of pooling as a form of transportation. Its application is primarily in our urban areas and primarily during rush hours.

This goal is not chosen at random but rather one that results from consideration of alternative modes of transportation. Pooling has such low social and monetary costs relative to the private automobile for urban rush hour trips that it appears very worthwhile to reduce the well-known and not so well known impediments to its use.

Pooling also appears to offer the possibility of economic viability in the private sector. Relatively minor adjustments in the highway system, governmental regulations, fees and taxes together with an education and service function provided by governmental units should cause a blooming of pooling as a form of transportation using the mechanism of private self-interest. Very little governmental expense should be required for very significant results.

The author believes pooling, already a very large component of urban travel, in the form of carpools can be increased greatly by various measures during rush hours. These large further increases in average vehicle occupancy can be achieved by vanpools and buspools as well as carpools.

An auxiliary requirement to greatly increased pooling is increased mobility during working hours when poolers do not have available their private autos. The need for improved mobility has implications for bus systems, taxis and car rental.

II. Benefits of Pooling

In order to provide motivation for increased pooling, the tangible benefits of pooling are summarized below.

Economic

1. A MARTA cost/benefit study[1]* put the average benefit of diversion of a single person from his auto to mass transit for a single trip at $5.25 in 1971 dollars. This same benefit occurs when a single person is diverted from his private auto to a pool. Included in this benefit are time savings for other drivers and their passengers as well as for trucks and other commercial vehicles.
2. To understand the marginal[2] cost of single automobile trip during the rush hours consider the following analysis:

Highway Costs: An average urban freeway lane costs about $4,000,000 per lane mile. At a 10% discount rate and 40 year life the annual cost of that lane is $409,036. Since the marginal lane is fully utilized only about 3 hours/day (rush periods), 250 working days per year it is constructed for the benefit of approximately 1,500,000 autos per year giving an average cost of $0.27/vehicle mile as the marginal cost of using a freeway during rush periods. A similar analysis for arterial lanes based on $1,300,000/lane mile gives $0.18/vehicle mile.

Parking Costs: Based on a $4,000 cost for a single urban core area parking space and a discount rate of 10% and a life of 40 years the annual cost of a parking space $409/year. If that parking space has an additional $180/year operating cost the total is $589/year. A single day's use of a parking spot provides for two trips - one in and one out of the core area. Thus a single trip cost is $1.18.

See footnotes page 26 .

Vehicle Capital Costs: If a vehicle costs $3000, lasts 10 years and a discount rate of 10% is used the annual cost is $488. If the vehicle is purchased for the purpose of commuting to and from work the marginal vehicle capital costs are approximately $488/500 = $.98 per trip.

Vehicle Operating Costs: Studies indicate that a compact cars operating costs are about $.0527/mile.

Totals: Consider now a 10 mile rush period trip using an auto owned primarily for making such trips where 5 miles are by arterial streets and 5 miles by freeway. The marginal cost is approximately

Highway	$2.25
Parking	1.18
Vehicle	1.51
	$4.94

The implication of the above analysis is that diversion of a single auto during rush periods has a direct economic benefit of approximately $5.00 per 10 mile trip. It does not include congestion costs as does the MARTA study. If such diversions do not result in the actual reduction in the number of privately owned automobiles (e.g. "Yes, I'll pool to work but I won't sell my second car") then the economic benefit is approximately $4.00. Not included are the costs of residential parking or highway maintenance. The marginal costs of providing a pooling trip are essentially zero since the capacity already exists in the form of empty seats in existing automobiles. However, in the long run (of the order of the useful lifetime of an automobile) vehicle costs are marginal so that in the case of the above analyzed auto the marginal cost per ride is $1.51 divided by the number of passengers. If one considers pools of 3 or more people it is hard to visualize a requirement for additional parking or highway construction.

Extensive use of vanpools or buspools will require new vehicles, which depending on service levels (quality of the vehicles, spaciousness of seating), will have costs of the order of 50¢ to $1.00 per ride. This cost is of the order of transit bus costs and considerably less than rail rapid costs.

Energy

Pooling is a very low energy form of motorized transportation. A comparison is made in the table below between various alternatives in terms of passenger miles per gallon of gasoline (or energy equivalent)

	Vehicle					
	Subcompact	Compact	Standard	Van	Bus	Rail Transit
cupancy						
1	25	18	12	12	5	2
2	[50]	36	24			
3	75	[54]	36			
4	100	72	[48]	48		
5		90	60	60	25	
6		108	72	72		
10				[120]	50	
15				180		
20					100	40
30					[150]	
40					200	80
70						140

[ ] typical pool occupancy

Pollution

Air and noise pollution is roughly proportional to energy consumption. However, if one considers the mass of principle air pollutants (carbon monoxide, sulfur oxides, nitrogen oxides, and hydrocarbons) per passenger mile the following

four situations are roughly equivalent to 7 grams/passenger mile[3].

1 person in a 1976 standard auto
8 people in a 1970 standard auto
13 people in a urban diesel bus
18 people in a rail rapid electric car

The electric rail car's air pollution is contributed by the central power station generally in a rural area at high altitude.

The implication of the above is that by ride sharing the standard auto can be quite competitive with mass transit particularly if late model vehicles are used.

Lane Capacity

Probably the most desirable feature of pooling in meeting peak period travel demands is the high lane capacities for seated passengers. For reference, a single lane of freeway with driver only autos has a capacity of roughly 2,000 people per hour. On an arterial street the capacity is roughly 1,000 people/hour/lane.

Seats per Lane per Hour

	freeway	arterial
2 passenger car	4000	2000
4 passenger car	8000	4000
6 passenger car	12000	6000
9 passenger van	18000	9000
300 passenger rail rapid train (90 second headways)	20000	
15 passenger van	30000	15000
25 passenger bus (1,500 mini-buses/hour)	37500	18750
44 passenger bus (1,136 buses/hour)	50000	25000

A particularly advantageous feature of pool systems is the lack of a dead-head or low occupancy run in those cases where travel has a preferred direction. For instance, into the CBD in mornings and out of the CBD in the evenings. This in principal allows reversible lanes which reduces the amount of in place concrete

considerably.

A second factor is the ability to achieve higher average occupancies when there is a preferred direction, again because of the lack of a dead-head. This has impact on fuel consumption or pollution.

Lastly a given lane of concrete can, and generally would, consist of traffic with a mixture of vehicle types and occupancies. By controlling this mixture high productivity of a lane can be achieved. This topic is addressed soon.

Summary

Pooling has very favorable characteristics with regard to cost, energy consumption, air pollution and peaking characteristics (lane capacity). The remainder of the report deals with what can be done to make it attractive to commuters.

III. Incentives for pooling

The incentives for pooling are divided into five catagories - the road system, governmental rules and regulations, fees and taxes, education and research. The author takes the point of view that incentives should only be implemented if they are efficient and equitable. Efficient means that a given incentive will cost less in money and social penalties than the resulting monetary savings and social benefits. Equity is more difficult to realize but roughly requires that costs and benefits are equitably distributed among the population, i.e. those with the greatest benefits bear the greatest costs.

Road System Incentives

Road system improvements are generally justified by comparing on a present value basis the cost of the improvement to the savings which accrue to the motorists in terms of their savings in vehicle costs and trip time.

One of the most obvious road system incentives is to allow high occupancy vehicles to bypass conjestion delays. The general situation is where autos enter a queue where the conjestion delay is T. Suppose we represent the occupancy of the vehicles by i and the probability that there are i people occupying an auto by p_i. Then the average conjestion delay of passengers in a vehicle is $T\sum_{1}^{\infty} i\, p_i$ which is the same as T x (average occupancy). Suppose however that autos with more than N occupants are allowed to go to the head of the queue thus reducing their conjestion delays to zero. This will increase the conjestion delays, however, of the autos with N or fewer occupants. Suppose this delay is T_N. The average delay of vehicles however will still be T, hence $T_N \sum_{1}^{N} p_i + 0 \sum_{N+1}^{\infty} p_i = T$ and therefore $T_N = T/\sum_{1}^{N} p_i$. Then the average delay of passengers in a vehicle is $T(\sum_{1}^{N} ip_i/\sum_{1}^{N} p_i)$. This

average delay is always less than the previously calculated delay. In fact, if all vehicles with more than one person are allowed to bypass the queue then $\sum_{1}^{1} ip_i / \sum_{1}^{1} p_i = 1$ and the average delay for all passengers in a vehicle is T rather than the previously calculated T x (average occupancy). Thus conjestion delays are reduced by the factor 1/(average occupancy). The most often used figure for rush period traffic is an average occupancy of 1.3 people per auto. This gives a conjestion delay factor of 1/1.3 = 0.77 or a 23% reduction in conjestion delays. This would generally understate the effectiveness of such bypassing techniques since the appropriate average occupancy to use in the formula is the average occupancy of all vehicles including buses. Furthermore, once such features are incorporated into a road system, average occupancy will increase. An increase of average occupancy not only improves the effectiveness of the bypass but results in fewer vehicles. This, in turn, reduces T the basic queue time delay per vehicle.

Now for some examples of what is meant by a bypass. Consider a freeway entrance ramp. A parallel lane restricted to high occupancy vehicles which could merge ahead of the rest of the queue would be a bypass of the entrance ramp delays. A separate entrance would not be a bypass, but rather a vehicle capacity increasing measure, which for cost benefit purposes, would need to be considered in a slightly different manner.

A lane on an existing freeway restricted to high occupancy vehicles would bypass the congestion delays on the freeway itself. Similiar lanes on arterial streets are another possible example. In both cases a lane formerly devoted to mixed traffic is devoted to high occupancy traffic.

In some situations the effect can be achieved by devoting entire roads or entrance ramps to high occupancy traffic. Suppose there are several entrance ramps within a short distance. (The example the author has in mind is the Atlanta downtown connecter from 14th Street to Williams Street). One of these would be devoted to high occupancy vehicles only. The effect is roughly to bypass entrance delays since a driver can generally use an alternate. An arterial street for which there are alternate parallel arterial streets presents the same possibility.

The very simple analysis and examples presented above illustrate the basic effectiveness of and extremely low costs of the bypass type of incentive. Some comments are in order however. First it is assumed that enough high occupancy traffic can be found to fully utilize the dedicated facilities. This is no problem with regard to the freeway entrance illustrated earlier. If vehicles with two or more occupants are not available single occupant vehicles are used to fully utilize the acceleration lane until such time as the conjestion delays are reduced to zero. However, if a single lane of freeway were to be set aside on say a four lane freeway (two in each direction) it is possible that, initially at least, there would not be enough autos with two or more occupants to fully utilize that lane. This doesn't mean that an analysis would show such a more unwise but rather that care must be taken to be sure a net benefit is achieved. Generally this problem should be avoidable by initiating bypass facilities in the most obvious places first. Then as high occupancy builds up extending the measures to other places along the route. Also when a high occupancy bypass is

introduced high occupancy traffic which did not use that route previously will be diverted to that route thus increasing even further the delays of low occupancy traffic. The low occupancy traffic will then be diverted away or better yet be converted to high occupancy traffic through the formation of pools or use of transit.

Attempts should not be made to push the required occupancy up to the point where a facility is underutilized. As long as the bypass can tolerate additional traffic without conjestion delays the required occupancy should not be increased.

Special facilities such as entirely seperate freeway lanes (often reversible for maximum cost-effectiveness), roads and ramps are often good investments. Essentually what one is doing in this case is to first increase the capacity of the system (which is the classical approach to traffic problems) and then second to use that additional capacity for bypassing conjestion delays.

If there are no conjestion delays there is no benefit to bypassing. Thus bypassing regulations often should be a function of the time of day. The requirement for high occupancy is frequently only needed during peak traffic hours. To continue to limit a facility to high occupancy vehicles when there are no conjestion delays only serves to inconvenience others unnecessarily.

The bypass features discussed requires the imposition of traffic regulations of a type not commonly found in Georgia. Namely, certain sections of concrete are not to be used by vehicles of less than a certain occupancy during certain times. There generally is concern with the ability to enforce these regulations. However, in fact there is the same concern with regulation of speeds, turns, intersections, parking, etc. In every case, there is a failure to achieve universal compliance but a sufficiently vigorous enforcement of the law as represented by probability of apprehension and severity of

punishment to create an "acceptable" compliance.

However, no law can really be enforced which is obviously not necessary for public benefit. This reemphasizes the need to make occupancy regulations only in those places where it creates obvious benefits. For instance, a lane restriction 24 hours a day would almost always be viewed as unnecessary. So would restricting a freeway lane to buses when there is only one bus a minute. Such a lane appears to the general public - and is - under-utilized.

An ideal example of a congestion delay bypass, from the author's experience, would be to dedicate the Williams Street northbound entrance ramp to high occupancy vehicles during evening rush hours and to restrict the left most lane of the connecter from there north to high occupancy vehicles. The author would not be surprised if such a simple measure would reduce total congestion delays of northbound CBD commuters by 50% within one year (to give them time to form pools or switch to transit). Such an achievement would have a value in time savings alone of roughly $\$1.5 \times 10^6$/year*

A generically different type of pooling incentive is related to parking. There are two types of incentives in this catagory - pool and ride lots and preferential employment parking.

Pool and ride lots are parking lots generally in or near residential neighborhoods where people who are in pools (but are not the drivers) or who ride transit can park legally and safely. The most advantageous locations for these lots are near the entrances to freeways or near arterial streets. The word near is used because the locations suggested are generally locations of high land value and some compromise will probably be necessary between location and cost.

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*(10 minutes/day) (3 lanes) (1 1/2 hour peak period) (2000 cars/hour/lane) (1.3 people/car) (250 days/year) ($3/hr) = $1,462,500. Or 11,700 people per day save 10 minutes.

On a cost-benefit basis the use of a park and ride lot frequently represents the trading of a high cost CBD parking space for a lower cost outlying parking space as well as road use, conjestion and vehicle operating cost savings. Assuming that drivers pay the full cost of parking at the employment end of their trips it is the road use savings and congestion reduction which justifies subsidy of park and ride lots. These savings can be substantial.

There are opportunities to obtain the services of park and ride lots at low cost by multiple use of existing parking lots. The most outstanding examples of available parking are church lots. Churches are widely distributed in residential neighborhoods but generally on arterial roads. There are roughly 2000 churches in the Atlanta SMSA. Church lots are generally grossly underutilized during weekday daytime hours. Although it may be possible to convince many churches to allow free use of their lots, the author is of the opinion that churches, as a public service to their neighborhood, would generally be willing to allow use of their lots if arrangements were made for public maintenance of the lots in return for public daytime use of the lots. While making such arrangements would tax the ability of lawyers, it would appear worthwhile to make the attempt.

Another type of existing parking area which might be available is the retail outlet parking area particularly at shopping centers and discount stores. Here the underutilization during weekday daytime hours is less extreme than for churches and in some cases non-existant. If a lot is underutilized the owners may see a designation of part of the lot for park and ride as a way of increasing business since potential customers are being drawn to their premises.

Lastly lots can be built particularly for park and ride purposes. Land already in the public domain may be available for this such as on existing right-of-ways. If new land needs to be purchased for parking lots the author urges consideration of the concept of "value capture."

Employment parking is generally not directly under the control of government and is not typically considered to be part of the road system. However, it will be considered so here. Employers frequently subsidize the parking of employers cars, but make no commensurate subsidy of these that choose to pool or use transit. A theoretically better situation would be for the employer to charge the true cost of parking. Since this alternative has tax disadvantages for both the employer and employee an alternative measure is to provide preferential parking to those employees who are in certified pools. The incentives include lower parking charges (if there are any to begin with), reserved parking spots, and reserved parking spots with preferential location. Preferential location involves nearness to work location, degree of shelter for the vehicle and degree of shelter for the walk to and from work.

An employer may also use the subsidy he is providing for his employees in a number of innovative ways which are not related to parking and are discussed in the section on education.

Government Rules and Regulations

There seem to be no significant impediments to pooling in the current laws, rules and regulations of the State of Georgia. There are some minor handicaps caused by the lack of experience in pooling arrangements. To the author's knowledge, there is not a single "legal" vanpool or buspool in operation in the State of Georgia. This lends to the following difficulties.

First, the Public Service Commission (PSC) has had no experience in certifying such operations and has no specific policy with regard to vanpools and buspools. Second, insurance rate classifications for vanpools and buspools to not exist and are not filed with the Insurance Commissioner.

The rate universally quoted by local insurance brokers when a buspool or vanpool is described is for a bus or limited use bus. Both of these catagories of operation have greater risk exposure than pools. A previous study[5] by the author indicated that buspools and vanpools should be able to buy a high level of coverage for approximately $500/year. However, local sources fail to give rates less than $1000/year for a nine passenger vanpool. With proper driver training and sufficient numbers of vehicles in operation, it should be possible to get coverage costs down to $300/year. Getting there is going to be difficult. If a major employer, such as the state government, set up a system of van and/or bus pools where at least ten vehicles were involved, it probably would be possible to set a precedent in Georgia which would allow the creation of a reasonable insurance rate.

Both the PSC and the Insurance Commissioner have an opportunity to greatly enhance the development of vanpools and buspools by creating specific and favorable policies with respect to vanpools and buspools. Specifically, the Insurance Commissioner could establish a bus-pool rate classification and invite insurance companies to file such rates. To reiterate,

> a pool bus is a vehicle whose commercial use is limited to one round trip per day between a specific residential neighborhood and a specific employment/shopping/recreational area. The only non-commercial use is the personal transportation of the operator, his family and guests.

The PSC probably only needs experience to establish a routine and settled policy and procedures with regard to pools.

The question of governmental taxes and fees is addressed next.

Taxes and Fees

In the table, following this page, it is assumed that all vehicles are driven 250 days per year and 30 miles per day. The property tax rate is assumed to be 3.5% on 40% of fair market value. It can be seen that taxes and fees are considerable.

For contrast, a publicly operated bus pays only $1 per year (for a license plate). Of course, all taxes and fees could be avoided by publicly operated pools also.

The author recommends that the fees at least be reduced for pool vehicles. In particular, busses have the highest of all motor vehicle registration fees. License plates for autos never exceed $15.00. If the vehicles were classified as trucks for hire instead

TAXES AND FEES

FOR POOL VEHICLES IN GEORGIA

	Car Pool	Van Pool	Bus Pool
Property tax	$35.00	$56.00	$140.00
Federal gasoline	20.00	25.00	60.00
State gasoline	37.50	46.88	112.50
License plates	5.00	37.50	206.25
PSC fees	- *	25.00	25.00
Total annual	$97.50	$190.38	$543.75
Assumptions:			
Fair market value	$2500.00	$4000.00	$10,000.00
Miles per gallon	15	12	5
Gross weight	3000 lb.	5000 lb.	15,000 lb.
Annual mileage	7500	7500	7500
Average occupancy	3	9	25
Taxes/vehicle mile	1.3¢	2.5¢	7.3¢
Taxes/passenger trip	6.5¢	4.2¢	4.4¢

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* No fee unless operated as a public carrier

of busses, the vanpool would have a fee of $10.00/year and the buspool $20.00/year. The PSC fee is uniform for all vehicles which have certificates. A reduction in this for pool vehicles would recognize the special benefits of such vehicles to the public interest.

Education and Information Services

Education of citizens both natural and corporate can play a large part in causing pooling to become more widespread and more attractive. Education is furthermore a traditional function of governmental units. Specific areas in which programs are needed are:

1. General education of the public about the benefits and technology of pooling. The essential concept to make known is that pooling can provide extremely high service levels for peak period travel at low monetary and social (pollution, energy consumption, etc.) costs. Mechanisms for public education include:
   a. press releases and press coverage of pooling activities.
   b. talks to PTA's, civic groups, business groups, etc. by members of the GDOT and others involved in pooling system development. Appearances on TV and radio shows would also be very effective.
   c. public service TV and radio announcements.

d. a high-school unit for social study teachers.

A well prepared unit distributed to Georgia teachers would probably be used frequently and have both short term (parents) and long term (students) impact.

2. Public driver training and certification procedures.

One of the amazing phenomena of highway use is the extreme safety of school bus operations. Since a school bus is a very similar operation, it would be well to emulate some of the features. One such feature is a short driver training program requiring only one or two days of instruction. Another is the setting of vehicle standards and licensing standards.

3. Education of employers about the economics of employee transportation and the alternatives available for employee transportation. Employers should be made aware of the subsidies they are providing their employees (if any) and what their employees are paying for transportation. Then the opportunities for modifying these costs by adopting alternative strategies should be presented.[6]

4. Education of urban planners and transportation planners.

It is fair to say that urban planners and transportation planners have never formally been instructed on the pooling mode of urban transportation or how that mode could be used

to achieve more transportation with less concrete. Since most of these people attend periodic short courses, this would be a good mechanism for instruction of these planners.

5. Lastly, the pool matching programs need to be expanded to provide people with a way to form or join pools. Initially, the emphasis will be on forming pools. At later stages the data processing will be more for the purpose of enabling people to join existing vanpools and buspools and for the purpose of analyzing on-going systems in order to modify schedules, vehicles, rates, etc.

There is a problem with education in general, with regard to pooling. Education tends to take place after the fact. That is, at all levels except perhaps graduate education, education implies imparting information about what is common place and excepted. Unfortunately, the same is probably true here. The author would place more emphasis on action oriented programs to create positive incentives to pooling and start particular pooling projects than on a general educational program.

Research

This report has necessarily dealt with broad concepts. Each of those concepts requires considerable research. Some of the specific research questions are the following:

1. How should a cost-benefit analysis of a congestion by-pass be conducted?
2. Where (in Atlanta particularly) should congestion by-passes be implemented?
3. Using available origin-destination data what fraction of the rush period traffic might reasonably be expected to pool if all the incentives and supporting structure were in place?
4. What is a good PSC policy on pools? Good in the sense of maximizing the public benefit.
5. What can be done to provide low insurance rates? That is, what can be done to maximize safety, minimize property loses and obtain corresponding rates?
6. Is it reasonable and are there reasonable mechanisms to provide tax incentives to pool vehicles and systems?
7. How should a driver education and vehicle certification system be implemented?
8. The technology of pooling can be greatly improved by better vehicles, communications and real time data processing (reservations). Should the State be involved in this in order to not only to improve transportation but to create a local industry?

IV. A Pooling Utility

Pooling has never been organized as a utility as have all other forms of public transportation. Conceivably a pooling utility could be part of an urban transportation utility such as MARTA to enable it to meet peak period demands economically. Organization as a utility - a business organization performing a public service and subject to special governmental regulation* - would permit the universal availability of service, the continuity of service and quality of service not easily achieved by disjoint efforts of employers and other user groups.

The pooling utility described[7] is intended to be used almost entirely by commuters who go to and from work with reasonable regularity as to location of work, days of the week, and time of day. For these people the system provides a mode of transportation that is deluxe. At a predetermined time a vehicle stops for them at or very near their place of residence. An electronic warning that the bus is approaching the pick up point can be provided at nominal cost. The bus itself is luxuriously outfitted with such things as carpeting, comfortable arm chairs, small tables, a refreshment bar with refrigerator, color TV, and a head set sterio music system. The number of people on the bus would vary from 7 to 35. There would be no standees and <u>at least</u> 1 square yard of space per person would be provided. All would live and work in geographical compact neighborhoods so that the trip itself is express via freeways between the home area and the employment area. It is anticipated that various refreshments and fresh reading material would be available on the bus both morning and evening.

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*Merriam-Webster Pocket Dictionary

How is such a service provided? Service of this quality at a reasonable cost requires three innovations.

1. Use of a reservation system. Reservations could be changed at the riders discretion but only on a space available basis. (This is the system used by airlines.) This insures a high load factor on the buses and enables home pickup.

2. Use of drivers who are making the trip anyway. Generally the vehicles would make only one round trip/day with parking at both ends. This innovation reduces total costs drastically even though the drivers are paid and capital costs rise. This also has implications concerning the design of the vehicles since they are used at most two hours/day and travel the order of 10,000 miles/year.

3. Some preferential treatment of pool vehicles over cars and trucks in the use of the roads. There are a number of innovations in this area, which if done properly, allow pool vehicles to be faster and safer and more comfortable than would otherwise be possible with only minor penalty to private autos.

It is suggested that the mechanics of operation be as decentralized as possible and might be as follows. A geographic residential neighborhood and a geographic employment area would be paired with each being picked of a size and population so as to facilitate quick pick up and discharge of passengers and sufficient demand to justify several round trips/day. Something of the order of 60 to 300 commuters would be appropriate. These people would form a lose organization which would establish by democratic rules the exact schedules, the frills associated with their buses, the rules

of conduct on the vehicles, and the fare to be charged to break even. * They would have responsibility to secure their drivers (usually from among the members), to manage the refreshment concession and perhaps to maintain the cleanliness and appearance of the vehicles.

The pooling utility itself would provide various services. Possible services include central buying, ownership or lease arrangements for the vehicles; supplying insurance and mechanical repair service; daily servicing of vehicles with refreshments, reading material, fuel, etc; various data handling and financial services including making reservations, preparation of the daily passenger pickup schedule, and monthly billing; and obtain and administer public regulation.

The vehicles themselves would not be built to the standards of conventional public transportation buses but rather to the standards of the private automobile. That is, design would be for 100,000 miles of service over a period of approximately 10 years. Body construction, steering and braking systems, and power train would approximate that of a modern school bus or van. However, suspension, sound proofing, and interior appointments would need to be much improved. The fact that weight when in service is highly predictable provides for optimization of suspension (everyone has a seat and most seats are filled). Some streamlining of bus styles is also desirable to allow 70 mph cruising at the horsepower of a conventional luxury car. Overall vehicle lengths would probably vary from 15 to 45 feet, with the longer lengths used to connect high density living and work areas.

The proposed passenger scheduling routine is somewhat complex. In short, it guarantees a seat if one has a reservation but reservations themselves are made on a priority basis. Reservations for regular riders are

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*including the effect of subsidies, if any.

made for blocks of time, a one month period for instance. Such riders are guaranteed a space if they are willing to commit themselves to a minimum number of trips per month. Thus, for instance, the rider would be guaranteed a space if he wanted to go in every day at 7:15 and leave work at 4:45. A guaranteed renewal feature might also be incorporated where as long as you continued with a particular weekly schedule you could renew it.

Last minute changes in schedule could however be made. If a person desired to change trip times he could still telephone until say midnight of the preceding day for a reservation on the next day at a different time and it would be granted if space was available. Cancellations could be made say up to 9 p.m. of the preceding day and no charge would be made, except that, the total number of rides to which a person was committed in advance must be payed for even it fewer were used.

As a practical matter one could ride on almost any vehicle he chose since the number of buses would be increased to provide an 80% load factor. That is, on the average 20% of the seats would be empty. However there might be a charge, say 5¢, for every schedule change a person made to cover the expenses of making the change. Incidental riders could make reservations but only in a period of a few hours before the time of the trip in order to give regular riders priority. A reservation system of the type proposed was not possible before the advent of the digital computer touch tone dialing and electronic voice response but is very practical and inexpensive at present.

Parking for vehicles would not be centralized. At night buses would be parked near or at the drivers residence. Smaller vehicles would be available for the driver's personal use. Except for downtown, major employers would provide parking during the day. Downtown, the stadium parking lot might

be used with a shuttle for drivers. It appears that for reasons of system cost associated with the air conditioning and refrigeration it would be desirable to be able to "plug" in the larger vehicles to 220 volt power while parked.

The system just described has a high level of amenities. It however seems appropriate to the last quarter of the twentieth century if current expectations of increased quality of life are to be met. Furthermore, the author believes it has only minor technological problems and has, despite initial reactions to the contrary, low mometary cost when compared with alternatives of anywhere near the same service levels.

FOOTNOTES

1. From Benefits to the Atlanta Metropolitan Area from the Proposed Regional Transportation Program, by Development Research Associates, Dec., 1971. The figure $5.25 does not appear in the report. It is the result of author working "backwards" from the report's conclusions and assumptions. $5.25 is an average figure for all urban trips and does not take into account the special costs of rush hour trips except as they contribute to the average.

2. The "marginal cost" is the cost associated with small changes in demand. It is the cost of adding one more vehicle to traffic. In the situation considered here the marginal cost of a peak period employment trip is considerably higher than either the average cost of such trips or the marginal cost of non-peak period trips for such things as shopping and re-creation. Another way of looking at it is that the marginal cost represents the savings from diverting a single auto from highway traffic during peak periods.

   The figures used in the marginal cost analysis came from Comparison of Urban Travel Economic Costs by Marshall F. Reed, Jr. of the Highway Users Federation, February, 1973.

3. From "A Method of Estimating and Graphically Comparing the Amounts of Air Pollution Emissions Attributable to Automobiles, Buses, Commuter Trains, and Rail Transit," by Jerold W. Scheel. SAE paper No. 720166, January, 1972. The data on that paper is as follows:

	CO	HC	NO	SO	Total
1970 standard auto	47	4.6	6.0	0.27	57.9
1975 standard auto	3.4	0.41	3.0	0.27	7.1
Diesel bus arterial	28.3	1.65	36.3	5.2	71.5
Diesel bus downtown	50.6	2.76	54.4	5.2	113.0
Rail transit train	6.75	2.7	271	1030	1310.5

(Grams/mile)

   In this report the 1975 auto is referred to as the 1976 auto because of delays granted in implementation of standards. Also, the average of the two bus figures is used or 92 grans/mile. The rail transit train has 10 cars.

   The author has not considered the relative toxicity of the various pollutants. However, Scheel does and indicates that the relative toxicities are roughly as follows. If SO = 1 then NO = 0.8, HC = 0.5 & CO = 0.008. SO then is considered the most toxic with CO the least toxic.

4. Value capture is the process of recovering real estate appreciation caused by transportation improvements. The American railroads were financed this way in large part. In the case of construction of a parking lot in a suburban area, GDOT would acquire land for a park and pool lot, using eminent domain if necessary. Then property would be developed with parking combined with commercial activities. In the simplest form this means selling the air rights above the parking lot. To the extent that GDOT would also improve accessability of the parking area by road improvements subsequent to aquisition the value of the air rights would be enhanced.

5. See the report entitled, "Legal and Insurance Aspects of Carpooling Vanpooling and Buspooling" GDOT Contract No. 5-74, June 1974.

6. Employers who provide parking space for their employees are very likely providing a subsidy of from $100 to $500 per parking space per year when all capital, operating and tax costs are included. Furthermore, traffic delays, employee tardiness and transportation effects on hiring and employee retention add additional hidden costs.

   Employers can usually offer their employees convenient access to a range of alternatives besides the private auto at no net cost. This range includes bicycles, carpools, vanpools, buspools, charter buses, shuttle buses and public transit. Development of these alternatives generally requires a deliberate analysis of employee needs and ways of meeting those needs.

   In most cases, both the employer and employees will find themselves benefitted by a policy of promotion of ridesharing modes of commuting transportation. Incentives that can be offered by the employer are very important including provisions to ameliorate the reduced flexability of travel inherent in giving up the private auto.

7. Most of the material on the pooling utility concept is taken verbation from an limited circulation draft paper entitled, "Comments on Urban Mass Transportation for Atlanta", July 29, 1971 by the author.